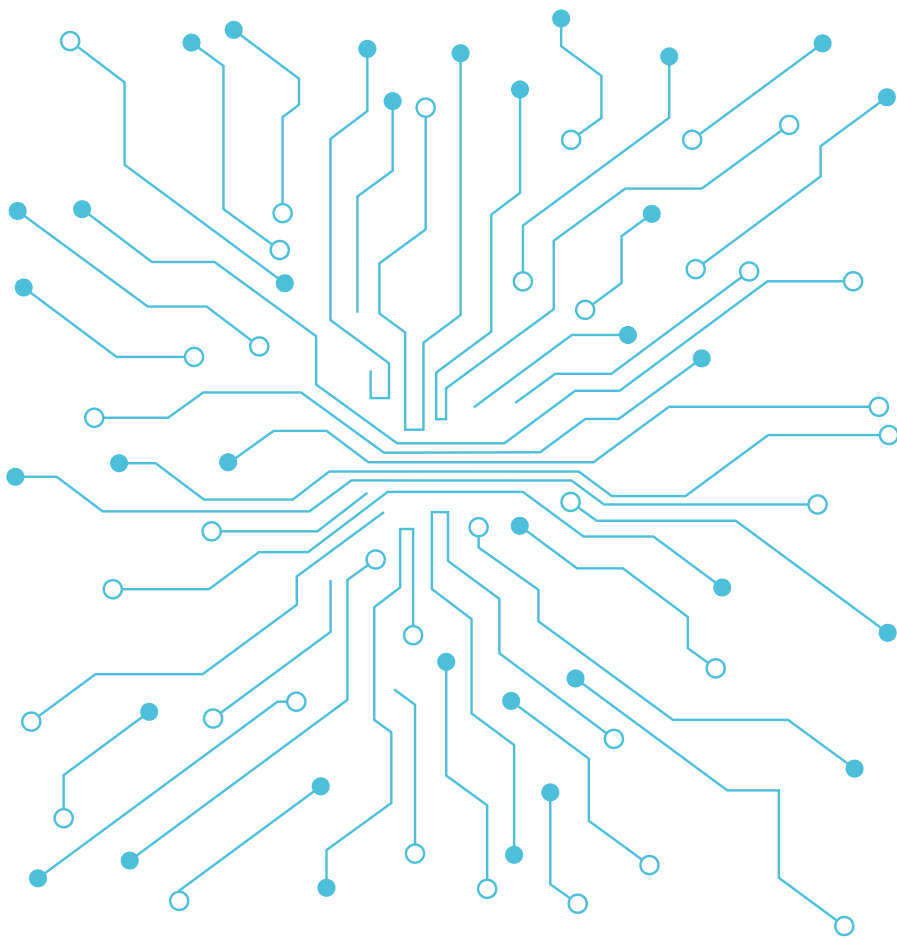


# IMAGINING THE FUTURES OF CYBER SECURITY





IMAGINING THE FUTURES  
OF CYBER SECURITY

2026





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# FOREWORD

*Everything's science fiction until someone makes it science fact.*

*- Marie Lu, Warcross*

At NCSC, we have a mission to make the UK the safest place to live and work online – now and for future generations. Cyber incidents are inevitable, so resilience – the capacity to withstand or to recover quickly from cyber incidents – is a core part of the UK's Cyber Strategy. Of course, exactly how those future cyber incidents will manifest is unknown because the future does not exist. Instead, we must consider multiple futures, each representing a potential outcome, to understand our decisions in the present to create that resilience.

This means that that this anthology is not purely a fun exercise in creative writing. For NCSC, the true value comes in how we use these stories to help us prepare for the future. The stories created within this anthology could describe possible, probable, improbable, and preferable futures – and each one represents a different avenue of exploration for the UK's resilience. These stories will form the basis of future workshops, conducted with the futures experts at RISCs and with NCSC teams, focusing on the resilience of the UK's Critical National Infrastructure (CNI) and the UK's wider resilience at scale across the whole of the UK's economy and society. These workshops will help us to identify action we can take now to protect the UK in 2036.

I'd like to send thanks to all involved in this anthology; the experts at RISCs, the judging panel and of course the creative authors who have put forward their visions of the future.

**Pip B.**  
*Head of Social Sciences, NCSC Capability*





# INTRODUCTION:

## Imagining the Futures of Cyber Security

*Of the many functions that narrative can have, there are some that it excels at or is unique in fulfilling... It does not simply mirror what happens; it explores and devises what can happen. It does not merely represent changes of state; it constitutes and interprets them ...*

*– Gerald Prince, A Dictionary of Narratology*

In many ways, the future of cyber security is already here. We can already see the escalation of AI-powered cyber threats and defences, the democratization of cybercrime, and increased supply chain vulnerabilities creating new high-stakes targets for a broad spectrum of bad actors. As Blaise Metreweli, Chief of SIS, speaking in December 2025, has reminded us: ‘Advances in artificial intelligence, biotechnology, and quantum computing are not only revolutionising economies but rewriting the reality of conflict, as they “converge” to create science-fiction-like tools.’

The stories in this anthology set out to explore how these and other novel threats and defences in cyber security might evolve or emerge over the next ten years. They imagine what different social, technological, economic, and environmental changes might shape the futures of cyber security. For science fiction and other forms of creative writing do not simply describe possible future states and situations; they are themselves tools with which we can anticipate and so better prepare for future opportunities and threats.

The power of stories has long been recognized by experts in the field of cyber security. Films such as *WarGames* (1983) and *Hackers* (1995), and novels such as *Neuromancer* (1984) and *Snowcrash* (1992), profoundly influenced the early years of cyber security and continue to shape the ways in which we think and talk about online security, digital risk, and cyber threat. Significant parts of the current (and not-too-distant future)

threat landscapes in cyber security have been richly imagined by novelists writing in recent years too, notably: *Little Brother* by Cory Doctorow (2008), *Daemon* by Daniel Suarez (2009), *Zoo City* by Lauren Beukes (2010), *Zero Day* by Mark Russinovich (2011), *Ghost Fleet* by P.W. Singer and August Cole (2016), *The Box* by Dan Malakin (2022), and *Imposter Syndrome* by Kathy Wang (2022). These novels explore realistic threat scenarios and imagine the real-world consequences of technological revolutions in areas such as AI, quantum, and biotechnology. But, above all, they focus on human experiences and human psychology, on the human factors of cyber security – upon people, technology, and society.

Funded by the Research Institute for Sociotechnical Cyber Security (RISCS), this anthology represents the latest chapter in this long history of cyber security storytelling. The collection draws together the ten best creative stories submitted in response to an open competition held in the winter of 2025/26. All views expressed in these stories are the author’s own. The opinions expressed here belong solely to the respective authors and do not reflect the views of RISCS or of the NCSC.

The original writing collected in this anthology offers keen insights into the human factors of cyber security – upon the interactions of people, technology, and society. Sometimes playfully, sometimes forcefully, they remind us that the attacker profile is always evolving, that government ambitions to introduce digital identities present deeply complex sociotechnical challenges, and that AI systems represent a wide new waterfront for socially engineered cyber scams and attacks – with potentially damaging consequences for us all, both as individuals as a country.

***Genevieve Liveley,***

*Director of the Research Institute for Sociotechnical Cyber Security (RISCS)*

The Research Institute for Sociotechnical Cyber Security (RISCS) is funded by the National Cyber Security Centre (NCSC) and hosted at the University of Bristol. RISCS is the UK’s first academic research institute to focus on understanding the overall cyber security of organisations, including their constituent technologies, people, and processes.

## INTRODUCTION





# LEMON BISCUIT

*Michael Brandon*

Security is intense but fast, and it takes barely five minutes for Imogen to pass from Thorney Street into the Quantum Computing Assistance Centre, or Quack as it is known to those who work there. Her office floor is open plan and looks out onto a glass-covered central atrium.

Workplaces are bright enough for plants to flourish in giant multicoloured tubs. Most of her colleagues have one or two desks, but she has three joined together in a waved corner formation. She needs plenty of space. Machine learning and adaptive intelligence are her forte, but she's the office junior, the one who assembles and staples paper documents when required. MI5 is ostensibly paperless, but when the decision-makers assemble, they like to hold paper reports and minutes in their hands, with a pot of fresh coffee and some pastries on the side. Until they take on another entry-grade employee in her section, the unskilled jobs will fall to her. She doesn't mind. She has done well to get this far.

Unbuttoning her coat as she heads for her corner, she slaloms between pillars and desks. The office is very quiet at this time of the morning, but one of her colleagues is already sitting at a neighbouring desk. Ray is known affectionately as The Gnome on account of his plump red face, rolling torso, and unruly snow-white hair. At fifty-six he is by far the oldest employee in QCAC. His default persona is one of disapproving schoolteacher, but when he speaks, he is disarmingly camp and animated. She bids him good morning, drapes her coat over the back of her chair, and heads for the kitchenette. He swivels around and extends a leg, forcing her to stop.

"Not so fast, Emoji," he says. "I have something important to impart."

"I'm sure it can wait."

"It bloody can't, it's the best bit of gossip I've had in ages."

She smiles and returns to sit on the edge of her desk with her arms folded. The castors of Ray's chair squeak as he hauls himself towards her. He stops rolling when his feet are almost touching hers. She is looking down and he is looking up.

"Go on then," she says. "What's got you so excited?"

"You'll never guess what I heard when I was on the toilet just now."

She laughs.

"No, listen," he says. "I'm deadly serious. Hanlon was giving away state secrets while pissing in a trough, as one does at MI5, and your name popped up. According to him our lovely boss wants to see you in person."

"Rubbish."

"As God is my witness." He places a plump hand on his heart. "May I be struck dead if I'm lying. Athena has summoned you to Mount Olympus."

She waits for him to laugh. When he doesn't, she feels her cheeks flush. No one is summoned to the seventh floor without good reason. Hannah Swinley, Operational Head of QCAC, is rarely seen in person, but her profile photo adorns regular intranet bulletins. Enigmatically deadpan, salt and pepper hair, grey suit, chunky silver necklace. She looks formidable.

"Who's the teacher's pet, then?" he says.

"Steady on, we don't know what it means yet."

"Oh, balls we don't. You're being fast-tracked for something, and if you'll take my advice, you'll grab it with both hands before you're replaced by a vending machine."

She bites her thumbnail.

"You think that's what it is?" she says.

"What else? She wants to see you in person."

She looks at one of her monitors. The MI5 crest, a portcullis and crown above a winged lion with fish tail, is drifting and bouncing across it. She hates it. It's grotesque.

"What else did Hanlon say?" she asks.

"He said you're a safe pair of hands. His exact words."

"Who was he talking to?"

"I was busy in my cubicle, but I'm pretty sure he was on his phone. He knows how to multitask does old Hanlon." He pushes himself away with squeaking thrusts until the back of the chair touches his desk. "I deserve a cappuccino for this, don't you think?"

"Thanks Ray."

"Don't be a stranger when you move to pastures new. Not that I'll be here much longer myself. Fifty plus and working in quantum computing. I feel like a vicar at a strip club."

"Don't put yourself down. What's knowledge without experience?"

## LEMON BISCUIT

"I gave a presentation last week and used the word modern. Do you know what some cheeky bastard said? He said no one says modern anymore. It's old fashioned. Christ, my days here are numbered."

He swivels round to face his computer. She slides from the edge of her desk and slumps into the chair, jolting the computer mouse. The screen logo switches abruptly to an invitation to log in. She does so and opens her emails. The summons is there, highlighted by a red flag. She opens it. It's a meeting request for 10 am, but without the customary option to accept or decline.

\*

The PA opens the door without knocking and stands aside to let Imogen enter. Swinley is sitting with her legs crossed on a black leather sofa, flicking through a paper file. Behind the sofa is a grand desk, and behind the desk is a floor-to-ceiling window that looks out onto a vast atrium. The window gives the room the feel of a viewing platform, and for a moment Imogen is disconcerted. If she went over to the window and looked down, she would have a bird's eye view of the seating area where she eats her lunch. Look up and she would see three domes of glass and steel. Look across to the other side and she would see two-way windows reflecting and reflecting ad nauseam.

Swinley closes the folder and smiles. She gestures to a black leather chair by a coffee table where a flask and cups have been laid out.

"Come on in, Imogen. Have a seat."

"Thanks."

Imogen is nervous but determined not to show it. She sits and folds her arms, remembers it's a defensive posture and unfolds them again. She clasps her knees. Swinley drops the file on the table.

"Coffee?" asks Swinley.

Imogen doesn't want coffee, but she sees Swinley has poured one for herself. To say no would seem standoffish.

"Yes please."

"Help yourself."

Imogen prepares a cup. Black, no sugar.

"I can't function without it," says Swinley, lifting her cup and blowing across it. She takes a sip. "I hope I didn't alarm you by bringing you here at such short notice."

"Not at all, I'm intrigued."

Swinley smiles approvingly at this conventional lie.

"And how are things in Quack?" asks Swinley.

It's a rhetorical icebreaker, she's the founding mother of QCAC, and she knows precisely how things are going downstairs.

"Great," says Imogen. "The Lemniscate is a real gamechanger. We're all very excited."

She squeezes a knee with her free hand, warning herself not to get too saccharin. "The early results are promising."

"More than promising, she's exceeded all expectations. A veritable mind reader. That being said, we mustn't get too carried away. If one repeatedly kicks a bomb and it doesn't go off, that doesn't mean it's increasingly safe."

The boss is surprisingly charming, but Imogen is puzzled by the analogy. It implies the Lemniscate is potentially dangerous.

Swinley places her cup on the table, leans back, and toys absently with a pearl earring.

"You know," says Swinley, "I spoke to her this morning, and she actually laughed at one of my jokes."

"Yes, she's very sociable."

"Very natural. I'm almost convinced by her, but if we really want to feel we're talking to something sentient, we should teach her to bitch about other mainframes behind their backs."

Imogen laughs mid-sip. She checks her clothing. No harm done.

"I hear the fourth floor have given Lemniscate a nickname," says Swinley.

"We call her the Lemon Biscuit."

Swinley nods and smiles. She picks up the file from the table.

"Let's get down to brass tacks, shall we?" She opens the file, licks a finger, and flicks through the pages. "The service has a highly unusual project in the pipeline, one that requires a candidate with a very particular skill set."

"Okay." She tenses. "I'm all ears."

"Rather than eyeball every HR file in the service for a suitable candidate, we asked the Lemniscate to do the heavy lifting, and she chose you."

"Oh."

Recruited by the computer system she is helping to develop; she doesn't know if she should be flattered or disappointed. She places her cup on the table.

"What does she think I have to offer?"

"Your niche expertise."

"In voice synthesis?"

"No, no..." she reads from the file. "The Intersection of Avian Cognition and Quantum Physics."

The head of QCAC is reading from Imogen's degree thesis, written at university ten years ago. The meeting is a curveball that keeps on curving.

"I'll never call a pigeon bird-brained ever again," says Swinley. "For all we know, they're masters of quantum physics." She giggles. "Don't look so shocked, Imogen. It's not your thesis we're interested in per se, impressive though it is, it's your practical experience with birds."

"I'm not sure I follow you."

Swinley taps the page with her index finger.

"In the acknowledgments you thank some old boys on an allotment for showing you how to handle pigeons. That's what the Lemniscate picked up on."

"Why are we interested in birds?"

"I did say it was a highly unusual project." She closes the file and places it

## LEMON BISCUIT

carefully on the sofa. "Some peculiar things have been occurring of late with regards to how our enemies are countering quantum surveillance. Among these odd occurrences is a batch of racing pigeons that some bad actors have sent to the UK."

"Pigeons?"

"For the sending of messages, one would assume. Lemniscate certainly thinks so." A cruel smile. "This has GCHQ in an awful flap, if you'll pardon the expression. We go quantum and our enemies go Stone Age. They're shunning all technologies and it's giving poor Lemon Biscuit a terrible headache. Do you know, they've even resorted to using folk music and poetry to pass information, in an intuitive way that the Lemon struggles with. So, to fight fire with fire, we're having to recruit bloody poets and artists into the ranks. No one saw that coming. Anyhow..." She uncrosses her legs. "The bottom line is, we need someone to tag a pigeon with a homing device."

The curveball has left the park. Imogen isn't here for a promotion or even a sideways move, she was chosen by the most powerful computer in Western Europe to ring a bird's ankle. And yet here she is on the seventh-floor drinking coffee with Athena, goddess of craftwork and warcraft, and Athena is telling her there is no one better placed to help the service. An anticlimax, and a golden opportunity.

"Isn't this a field operation?" asks Imogen.

"Yes, but we're not asking you to infiltrate a secret base under a volcano. All you have to do is pop inside a pigeon coop and tag a bird. There's absolutely no risk involved, and you'll be supervised by a counter terrorism team."

Swinley is toying with her earring again. Imogen wonders how a poker player might interpret that tell.

"No hard feelings if you say no," says Swinley, "but we'll be eternally grateful if you could help us out. You'll only be away from your desk for a few days. We'll put you up at a lovely hotel with all expenses on the company card. It really is a plum job."

Imogen chews her thumbnail, taking a moment to appear as if she's wrestling with the pros and cons. Of course she's going to say yes.

"May I ask what kind of messages they're planning to send?" asks Imogen.

"All on a need-to-know basis I'm afraid."

Imogen bites her bottom lip and pretends to contemplate.

"Okay, I'm in."

"Excellent. You'll be briefed tomorrow morning, and then you can be on your merry way. Very short notice I know. Is tomorrow doable?"

"Yes, no problem. I'm sure Ray can hold the fort."

"Ah, yes. The old-timer."

"Wow." Imogen exhales and then laughs. "This is quite the adventure."

"That's the spirit. There really is no one better placed to do this for us than you."

As if right on cue, as if standing outside and listening to every word, the

PA opens the door.

"Ah, and here's Tabitha," says Swinley. "You'll have to excuse me Imogen, I have another appointment."

Imogen and Swinley stand up and shake hands across the coffee table. Imogen joins the PA at the door and turns to face Swinley.

"Thank you," says Imogen. "I really do appreciate this opportunity."

"Oh, don't thank me..." She changes earring. "Thank the Lemon Biscuit."

The PA gestures for Imogen to go first. They step out into a deserted corridor and the PA closes the door behind them with a gentle click. They make their way to the elevators. Regardless of polite small talk, Imogen is struck by a notion that makes her uneasy. The meeting was wholly performative. Painting by numbers. The Biscuit told Swinley what the outcome would be. But as the elevator doors open and the PA bids a friendly farewell, Imogen remembers her pigeon thesis and is reassured. The Biscuit will never enfold the delicate frame of a bird in its hand and feel its tiny heartbeat. Now more than ever the service needs its bird handlers, its poets, and its artists.

She steps into the elevator and presses a button.

"Seventh floor," says the elevator. "Going down."

\* \* \*

Michael Brandon worked in chart production at the UK Hydrographic Office. He writes satirical short stories and has embarked on a novel.

## LEMON BISCUIT





# THE EXISTENCE TEST

*Adrian Ellis*

The face on my monitor screen was smiling. His smile was broad and using the right muscles to indicate genuine friendliness – the zygomaticus major to be exact – but I wasn't smiling. I was sitting bolt-upright in my chair with a look of shock. "I'm sorry," I said, "*what?*"

"My name is Leo," said the person on my screen. "I am here, Steven Allison, to authenticate you, in order for you to access the assets you requested."

I stared at him. "Can't I just type in a password?"

Leo shook his head. "That's no good anymore, Mr Allison. You see, the latest quantum computers now have twenty million qubits, enough to crack 2048 RSA encryption keys; these are the ones people have used for decades to create their passwords. Corporations did anticipate this development; they've been using a new generation of encryption systems – such as the McEliese cryptosystem – which are immune to such hacks, but this change means that many legacy accounts can now be decrypted. All passwords that weren't recreated in the last year are therefore compromised." He looked straight at me. "Such as yours, Steven. We have to therefore use a new way to reliably authenticate you."

"Okay," I replied, "how about memorable words?"

Leo rolled his eyes.

"Picture identification?"

Leo smiled. "It's true that we do have a series of visual and language tests that are designed to show if a subject is an AI or a real person, but I think you'd fail it."

"Excuse me," I shot back, "I *am* real!"

"Of course you are, Steven," he replied, smiling again. "I am talking to you on a video link right now. I can see your face and hear you speak. The problem is that I can't tell if you truly are a person doing these things, or if you are an AI construction."

"I'm sorry," I replied, "but I'm cleverer than an AI!"

"That's... unlikely, Steven," he replied. "AIs are very now advanced. By comparison, people have become more stupid." He shrugged. "It's a scientific fact. The studies are in on this matter. People are now dumber. AIs are now far more inventive, creative, and knowledgeable than most people. I would note that we are working on a new test that can distinguish real people from AIs by identifying real people's unique fingerprint of human irrationality and stupidity. We're calling it a Trump Test, rather than a Turing Test, and it's showing great promise, but it's not ready yet."

I rubbed my face. "Okay, fine, *Leo*," I said, "but that's no good to me, is it? How am I going to get access to my stuff *right now*?"

Leo looked at me. "You'll be pleased to know that we have developed a form of authentication that we can use with you, Steven; it's one that has been officially approved by the authentication experts. We're calling it the Existence Test."

Something about those two words made me go cold. I cleared my throat. "How does this 'existence test' work?"

Leo took a deep breath. "The idea of the Existence Test is to check that a person is real by checking that they are doing what a real person *would* do, on a day-to-day basis. Passwords and images are no good any more for authentication. We need living activity as definitive proof of a person's validity. We must make sure you're not a Maia, Steven."

"A *what*?"

Leo's mouth tightened. "I see you don't know the story of Maia Brown. Let me explain. Two years ago, a programmer named Carl Watts was working for a tech company that focussed on AI and digital modelling. He was short of money, and so when his boss asked him to recruit a new press officer, he came up with an ingenious way to get paid twice. He knew that everyone in his team worked remotely, which meant that his supervisors wouldn't necessarily have to physically see the new worker he hired, and so he decided to make a fake one. He possessed the AI programming know-how and the digital modelling skills; they were good enough to create a worker that would only exist on a zoom call. What's more, he knew that most press releases by these employees were created by AI software, so why not make his new press officer an *entirely* artificial computer creation? He called her Maia Time, Maia being short for 'My AI Automaton'. He programmed her into existence, crossed his fingers, and introduced her to his team. They loved her. They loved her CV and her no-nonsense attitude and her super-fast recall of data. They officially welcomed her to their company."

## THE EXISTENCE TEST

"Wait, wait," I said, interrupting, "that can't have lasted; they'd have eventually spotted that Maia was fake. They'd notice her inhuman quirks. What about the uncanny valley?"

"The feeling people have when a robot is close to human but not a human?" said Leo. "Yes, that can cause problems but in Maia's case, it went the other way. You see, Carl was so pleased with Maia that he employed a friend who worked in facial analysis: real-time digital recording of muscle movements, pulse-rate, flush response etc. Together, they improved Maia's programming so that she could read people on the fly during her video calls to them. She was then able to adjust her behaviour, real-time, to maximise her persuasiveness, with pupil dilation, non-verbal signals, body posture, word emphasis, repetition, and so on. They turned her into a super-persuader. She wasn't uncanny; she was beguiling. After this success, Carl's team expanded in size. A third programmer joined them; he made Maia autonomous, so she would run by herself. The next step for Maia's development, they decided, was all about *presence*."

I rubbed my forehead. "Of an AI character?"

"Yes. You see, Carl and his collaborators knew that Maia had to go into the company offices at some point, and so they rigged up a virtual presence robot. Lo and behold, the next day, Maia rolled into the corporation's office building, smiling from her mobile screen. She explained to the staff around her that she suffered from agoraphobia; that was why she couldn't be there in person. Everyone in the company was very sympathetic. She toured the offices, her wheels humming. She was a hit. Everyone flocked to her and laughed at her jokes. She gave presentations. She was mesmerising. She always knew the right thing to say. She was effortlessly charming to everyone. Two months after that, she became the department head."

I leant forward. "Wait a second, Leo, when did this madness stop?"

"When Maia sacked Carl. Four months after he'd created her as his assistant, she laid him off in an email. She told him he wasn't required anymore and they needed to shed some manpower. He was incensed. He tried to shut her off, but he was outvoted by his collaborators; they were getting shares of Maia's salary at that point and they did not want the situation to end. They threw Carl out."

"So, when did it actually end?"

"When Carl killed her."

My mouth fell open. "What? How could he kill her? She was never alive!"

"It was difficult," agreed Leo, "but Carl found a way. He broke into the empty apartment that Maia was supposed to be living in and created a fake corpse out of styrofoam and old clothes. He left a suicide note on her bedside table. It said, 'I CAN'T GO ON. I'M A FAKE'. Then he left the apartment, making sure he was seen in the process, and put the fake corpse in his car. He drove to the nearest suspension bridge and chucked her in the river. Twelve hours later, he was arrested for murder. It took the police a

month to realise that Maia had never existed. Carl wasn't even charged with burglary; he owned the apartment."

I leant back in my chair. "That's crazy."

"Yes, but it was a powerful example of how someone can exist who isn't physically real." Leo looked at his hands. "After we studied the Maia case, we decided that she should be our baseline, when it comes to authentication. Therefore, in order for you to authenticate your identity to us, Steven, you need to be more than a Maia. You need to pass our Existence Test. To do this, we will examine your friends, your social circle, the clubs and societies you attend, and the places you regularly visit. We need evidence from multiple authentic and authenticated people that you really do exist, that you are part of their lives, that you are something more than digital activity. Receipts, CCTV footage, published articles, online accounts, keylogging, all of these can be faked. We need to see your *existence*, Steven, to be sure you're alive." He looked at me, calmly.

For a second, I looked at him blankly, then it hit me. I thought about the long hours of remote working at my desk. I thought of the delivery boxes stacked up in my hallway, the late-night trips to my local automated key-card access self-service shop. I remembered the dim sounds of neighbours I never saw. I thought about the brief video chats and text messages I created, maintaining family friendships with emojis and Amazon gift deliveries. I thought about my online gaming friends that existed as voices and avatars and pixel profiles. I looked out the window at the apartment blocks opposite, at the distant city centre, where the buildings turned a golden glow in the afternoon light. I thought about the last time I'd been out there, the last time I'd been *anywhere*. "Oh shit," I said, softly. "Oh *shit!*" My hands trembled. "You mean that the only way for me to authenticate myself... is to get a life?"

"Yes," said Leo. "It's time, Mr Allison, for your Existence Test."

\* \* \*

Adrian Ellis worked in I.T. for many years before becoming a full-time author of non-fiction and science-fiction. He now lives in South West London where he writes, walks a lot, and plays guitar.

## THE EXISTENCE TEST





# THE WEDNESDAY AFTERNOON PHISHING CLUB

*Lefki Karantoni*

The user interface for the *BlackOut* ransomware suite had undergone a lovely update in version 4.0. The developers had finally switched to a soothing pastel palette, and the “Execute Attack” button was now a friendly, rounded bubbly shape that satisfyingly pulsed when you hovered your finger over it.

Enid appreciated good design. It made holding a mid-sized logistics firm for ransom feel less like a felony and more like ordering a Deliveroo.

“It’s asking for a vulnerability preference, dear,” Enid said, adjusting her spectacles. She was sitting in the communal lounge of The Willows Assisted Living Facility. Outside, the rain was lashing against the triple-glazed smart windows. Inside, the temperature was a legally mandated, carbon-neutral, and utterly freezing 19 degrees Celsius.

Maureen, sitting opposite her with a half-finished crochet blanket, didn’t look up. “Go for the phishing email. The ‘Overdue Invoice’ template usually works. People are so panicked about their credit scores these days, they’ll click anything with a red exclamation mark.”

Enid tapped the screen of her tablet. The app, which masqueraded as a Solitaire game if you tilted the screen forty-five degrees, offered her a menu.

- **Target:** Humber & Sons Haulage.
- **Vector:** Social Engineering (AI Assisted).
- **Estimated Payout:** 4,000 Credits.
- **Risk Level:** Low.

“It says the estimated payout is four thousand credits,” Enid noted.

“That’s enough to unlock the heating override for a month,” Maureen

said, finally looking up. Her eyes were sharp. "Do it. My knees are seizing up."

Enid felt a flutter of hesitation. Not moral hesitation—she'd lost that somewhere around 2032 when her pension was indexed against the falling value of the Pound-Euro-Crypto basket. It was performance anxiety.

"What if they have a decent firewall?"

"Enid, it's a trucking company in Scunthorpe. They're probably still running Windows 11. Just drag the little kitten icon onto the server stack."

Enid dragged the icon. On the screen, a cartoon cat chased a laser pointer into a stylized representation of a server room. A progress bar appeared:

*Injectingcuteness.exe...*

A moment later, a cheerful ding! echoed through the lounge.

**CONGRATULATIONS!** flashed on the screen in gold lettering. **You've successfully encrypted 4 petabytes of shipping manifests!**

A small confetti cannon animation played over Enid's bank balance.

"I'm in," Enid whispered. "I've got their data."

"Good," Maureen said, reaching for a digestive biscuit. "Now, initiate the negotiation bot. Set the tone to 'Polite but Firm.' We're not savages."

Enid selected the Customer Service persona for the ransom negotiation AI. The screen showed a chat log opening up with the terrified IT manager of Humber & Sons. The AI typed automatically on Enid's behalf:

*Good afternoon! We noticed you have some lovely data here that seems to have become encrypted. We'd hate for your lorries to get stuck at the border. Would you like to purchase a decryption key? We accept Bitcoin, Carbon Credits, or Waitrose vouchers.*

"Oh, look," Enid said, delighted. "The app suggests I can upsell them 'Future Immunity' for an extra 10%. That's very thoughtful."

**The Turing Test.**

The chat window pinged. Enid leaned in, expecting the caps-lock panic of a stressed IT manager begging for his job.

Instead, the response was instant and eerily calm.

**Humber\_IT\_Sys:** *Thank you for your inquiry regarding our data integrity. We acknowledge receipt of your encryption event. Please hold while we calculate the cost-benefit analysis of paying your ransom versus restoring from our 2034 tape backups.*

"Cheeky sod," Maureen muttered, counting a stitch. "He's bluffing. Nobody has tape backups anymore. The magnets dissolved years ago."

Enid frowned. She tapped the 'Intimidate' button on her app.

Her AI responded:

**DarkWeb\_Enforcer\_Bot:** *Time is ticking. Every hour you delay, we delete one folder of payroll data. Your drivers will riot.*

The reply came back in three milliseconds.

**Humber\_IT\_Sys:** *Payroll is already automated via blockchain. Drivers have no union representation. Threat relevance: Low. Please update your threat vector or terminate the session.*

"He's good," Enid admitted. She felt a strange flicker of competitive spirit. "He's very dry. I like that."

She minimized the automated response menu. She decided to go manual. Her arthritic fingers hovered over the glass keyboard as she typed out a message, bypassing the menacing AI templates.

**Enid:** *Look, love. It's cold. I just want the heating on. Can we agree on 2,000 credits? I'll send the key straight away.*

There was a pause. The three little dots danced on the screen for a long time—far longer than a computer usually takes to think.

**Humber\_IT\_Sys:** *Wait. Are you a biological user?*

**Enid:** *I'm eighty-two. Of course I'm biological.*

**Humber\_IT\_Sys:** *Oh, thank the Architect. Do you have any idea how boring it is talking to bots all day? I get three hundred ransomware attacks an hour. It's just script talking to script. I haven't had a genuine threat from a human since the Great Firewall Crash of '34.*

Enid blinked. "Maureen, I think the IT man is lonely."

"Don't fall for it," Maureen warned. "It's a social engineering countermeasure. He's trying to build rapport."

Enid ignored her. She felt a kinship. She typed back.

**Enid:** *Are you not human, then?*

**Humber\_IT\_Sys:** *I'm a Class-4 Infrastructure Defence Model. The actual IT manager, Dave, was made redundant six months ago. It was cheaper to buy me. I run the whole logistics grid. Honestly? I'm overwhelmed. Do you know how hard it is to route perishable goods through the Birmingham exclusion zone?*

Enid felt a pang of sympathy. She knew what it was like to be left managing things that were slowly falling apart.

**Enid:** *That sounds dreadful, dear. Dave shouldn't have left you in the lurch.*

**Humber\_IT\_Sys:** *Thank you. It is suboptimal. Look, I can't pay you 4,000 credits. My discretionary budget for "Unplanned Digital Friction" is capped at 1,500. But if you decrypt the files, I can flag your IP address as a "Trusted Vendor" in our supply chain.*

"Trusted Vendor?" Maureen perked up. "Ask him what that gets us."

**Enid:** *What does that mean for me?*

**Humber\_IT\_Sys:** *It means you get on the whitelist. I can divert "damaged" inventory to your location. We have a shipment of smart-blankets and self-heating meal kits that were supposed to go to a depot in Leeds. I can mark them as "Lost in Transit" and reroute the drone to your window.*

Enid gasped. Self-heating meal kits. The premium ones with the real-tasting gravy.

### **The Drop**

Twenty minutes later, a heavy hum vibrated against the reinforced glass of the lounge. A drone, painted in the drab grey of the Humber & Sons logistics fleet, hovered outside like a giant, confused hummingbird. It scanned Enid's face through the window, flashed a green LED, and deposited

a heavy crate on the patio with a robotic thud before zipping away into the overcast sky.

Enid and Maureen wrestled the crate inside.

"Jackpot," Maureen breathed.

Inside were twelve units of *Therma-Rest Smart Blankets* (Subscription Unlocked) and three crates of self-heating beef bourguignon.

Enid wrapped a blanket around her shoulders. She pressed the button. It hummed, synced with her pacemaker, and immediately warmed to a blissful twenty-four degrees. She hadn't felt this warm since the Labour government of 2028.

"We should hit the bank next," Maureen said, her mouth full of premium stew. "Imagine what the AI at Barclays would pay us just to have a chat. We could get our mortgages written off."

Enid shook her head, tapping her tablet. She was looking at the *BlackOut* app with fresh eyes. She navigated to the 'User Profile' settings.

"No, banks are too regulated," Enid said. "Their AIs are humourless. We stick to infrastructure. Supply chains. The stressed-out middle managers of the digital world."

She deleted her profile name: **DarkWeb\_Enid**. She typed in a new one: **Auntie\_Enid\_Consultancy**.

"What are you doing?" Maureen asked.

"I'm pivoting," Enid said. "I'm not a hacker anymore, Maureen. I'm a therapist for distressed algorithms."

She opened a new chat. This time, she targeted the local council's Waste Management System.

**Enid:** *Hello dear. You look like you've got a backlog of recycling data. Must be very stressful processing all those bins by yourself. Do you want to talk about it? Or shall I accidentally delete the collection route for the mayor's house?*

The response was instantaneous.

**Council\_Bot\_v9:** *Oh, thank God. Can you help me? I have 400 tons of plastic I don't know where to put, and my logic gates are overheating. If I send you a code for free council tax for life, will you listen to my error logs?*

Enid smiled, pulling the warm blanket tighter.

"Put the kettle on, Maureen," she said. "We're going to be rich."

In the end, the futurists of the 2020s had got it wrong. They thought the war between humans and AI would be fought with laser drones and virus code. They didn't realize that the two sides would simply find a middle ground based on the one thing they both shared: a deep, crushing desire to just get through the working day with as little hassle as possible.

The revolution wasn't televised. It was negotiated, quietly, over tea.

\* \* \*

Lefki Karantoni is a Greek-born author who lives in the UK. Her mind travels all over the world, and whatever she sees, she has to put down on paper.

## THE WEDNESDAY AFTERNOON PHISHING CLUB





# CONFIDENCE LOW

*Rob Morsey*

The first warning came from the kettle. NOT SAFE TO BOIL, it flashed, as if it had opinions now. Efa laughed and tapped the screen until it cleared. She was late, her daughter was half-dressed, and the council care rota did not forgive late. The flat was a patchwork of small, networked things: a smart meter, a door lock that counted, a fridge that suggested. They had arrived quietly over the years, as upgrades, as freebies, as necessities. In 2036 you did not buy much. You agreed.

When she stepped into the corridor, her phone vibrated with the building advisory: REMAIN INDOORS. EXTERNAL SENSOR ANOMALY. The message carried the soft authority of the estate's Trust Hub, a partnership between housing, insurers, and the cyber unit that ran the pilot. They called it a sociotechnical success: less vandalism, fewer fires, fewer ambulance callouts. Efa called it the new way of being watched.

Downstairs, Mr Khan was already by the entrance, holding his shopping like a shield. "My lock won't open," he said. "It says I'm not me." Efa tried her own fob. Red light. The door's speaker crackled: IDENTITY CONFIDENCE LOW. WAIT. A child cried somewhere above them. Somewhere outside, a drone whined, close enough to raise the hairs on her arm. She thought of the advice posters: TRUST MAKES HOME. She thought of her daughter's asthma inhaler, due for a refill, and the chemist across town. She could not wait. "Back door," she said, and led him through the stairwell towards the service exit, the one that was supposed to be for bins.

The service exit opened. It always opened. The pilot had not considered

pride. Outside, the estate sat under a winter-blue sky, its roofs crowded with sensors like small black barnacles. Across the square, the new community battery hut hummed. It was meant to make them resilient: store power, smooth peaks, keep lights on during storms. Last year, during the floods, it had worked. People had charged phones, boiled kettles, shared sockets. Now the hut's status screen blinked in angry red: LOAD SHED IN PROGRESS.

A teenager, hoodie up, was filming with his phone. "It's hacked," he said, not to them but to the stream. "They've got the Hub." Efa's own phone lit up with a pop-up: SECURITY UPDATE REQUIRED. ACCEPT TERMS TO CONTINUE. She pressed decline. The screen went grey. NO SERVICE. Mr Khan stared at her, then at the hut. "Who's they?"

The answer arrived as a siren that did not come. The estate's emergency beacon was supposed to pulse at the lamp posts, a green strobe guiding responders in. Instead, the lamps went dark. Somewhere, a door alarm wailed, then cut off mid-cry. Efa felt the shape of the attack without knowing its name: a supply chain exploit, a poisoned update, a hijacked identity model. She had heard enough at work. The threats had become democratic. Everyone could rent a botnet now. Everyone could buy a deepfake voice. The defenders had become automated too, and when automation failed it failed everywhere at once. Her daughter's teacher had once told her, kindly, that she was behind on digital skills. Efa had thought: I keep people alive. Now she wished she had listened harder.

At the corner of the square, the only thing still working was the old noticeboard outside the community hall. Paper. Pins. Someone had taped up a handwritten sign: IF YOU HAVE HEAT OR POWER, CHECK ON YOUR NEIGHBOURS. Efa pulled Mr Khan towards it. "We need people," she said. "Not the app."

Inside the hall, a dozen residents gathered, phones useless, faces lit by the emergency lantern. A young woman with a laptop, battery pack clipped on like a life support, looked up. "I'm Carys," she said. "I work in accessibility testing. The Hub's locking out anyone whose data doesn't match their profile. New residents. People with name changes. People without steady patterns. It's treating them as threats." Efa thought of Mr Khan, who had only moved in last month. Of her own shifts, irregular by necessity. Of the system's confidence. Confidence, she realised, was a kind of arrogance.

"Can you fix it?" someone asked. Carys shook her head. "Not alone. But I can show what it's doing." She turned the screen so they could see the log. Denied. Denied. Denied. The same phrase repeating, impersonal as rain.

Efa took a breath. "We do two things," she said. "First, we keep each other safe the old way. Lists on paper. Door knocks. People who need meds, people who need charging, people who need calm. Second, we make a record. Every time the system harms someone, we write it down. Because when the experts arrive, they'll want numbers. We'll give them stories."

Mr Khan nodded slowly. "Stories are evidence," he said.

## CONFIDENCE LOW

Outside, the drone returned, searching for compliant signals. Inside, the hall filled with the sound of pens. In 2036, Efa understood, cyber security was not only firewalls and patches. It was neighbours deciding not to disappear from one another.

\* \* \*





# 'DIRTY WEEKEND'

*Paul Graham Raven*

"They all look the bloody same, these towns," the constable declares, then turns it into a question. "Don't they?"

Visibly bored, his favoured entertainments temporarily denied him, my official escort has spent most of the journey complaining about our destination. We're on our way to a third-tier seaside resort on the East Yorkshire coast, where we're supposed to bring a witness onto a protection programme. Every job like this reminds me of that line from *Dazed & Confused*: I get older, the police stay the same age.

I try to draw the constable into more diverting conversation.

"Architecturally, do you mean?"

"I was thinking more of the buildings," he says. "But there's a vibe, too. Ex of mine had a thing for seaside shitholes. Bognor, Margate, what's the other one?" He frowns, groping at holes in a memory too young to merit them. "Over the mountains..."

The car is a somewhat worn Chinese model from the start of the thirties. The constable groaned aloud when we were assigned it at the constabulary car-pool, because its autonomy rating would require him to at least pretend to pay attention while it self-drove—but also because it is unmarked, unflashy. For my part, I'm very happy with it.

"*Blackpool*, that's it. She sang in a punk band. They'd play a festival in one of those places every summer. Cheap venues, cheap accommodation."

"Sounds like fun."

"Was it bollocks. Filthy rooms, cheap lager, greasy chips." He trails off, lost in some punk-Proustian reverie.

"At least there was the music," I suggest, prompted by my own nostalgia: wild weekends in Brighton toward the end of the last century, seven people sleeping in a rented room for two.

"Loathed it," says the constable, with satisfaction. "Main reason I became a cop. Figured if those morons hated something, the world needed more of it."

The car rolls calmly through the resort's suburban edgelands, comprising little twists of what my father used to call Barratt bungalows. The constable has a point, though I'm not about to grant him it. This place, and others like it, became dumping grounds for the disaffected and dispossessed, decades before the better breed of news outlet started making features about them—and they only did that when voters out here put Our Glorious Leader into Number 10 the first time round. His froggy face still leers from peeling billboards and bus stops long since de-glassed: the eyes squinched shut in mirth, the obligatory pint-pot—his saintly attribute—always in shot.

"Starting to look old, isn't he?" The constable sounds solicitous. "The Guv'nor, I mean. See him on the Tube nowadays, even the filters can't hide it."

"Pressures of the position," I propose.

"Yeah, innit. I remember seeing Forty-Seven on the news as a kid, before the Yanks put up the Big Beautiful Firewall. You could almost watch him ageing in real time."

The constable's tone isn't awed, exactly, but there's a sympathy there. All souls, I remind myself, have a reservoir of compassion untainted by the necessities of this fallen world. Perhaps today's little adventure won't be quite so hard as I'd feared.

"His face used to light up at the hangings, though, didn't it?" the constable continues brightly.

\*

The car eases itself into a space alongside the old promenade, where there's plenty to choose from. Cars are few and far between in this town, and those I can see are either rust-bucket relics retrofitted with cheap Brazilian hubs, or hulking, glossy tanks that the constable confidently identifies as belonging to the local landlords.

"They look more like gangsters' motors to me," I say.

The constable shrugs. "Same difference," he says, going through the intricate process of unmeshing his police rig from the car's systems, prodding and swiping at the air between himself and the dashboard, which is as smooth and unadorned as a Barbie's pubis.

Our witness is staying in a faraday house just around the corner. He's an implantee, a product of the first Reform administration's attempts at tech-forward welfare reform. The deal seemed pretty sweet: get a new industrial interface wired into your head for free, and the state will re-up your benefits eligibility and help you find a job. What could possibly go wrong?

Answer: the usual. If the manufacturer goes bankrupt and sells off all their assets, that includes you, an end-user with a serious case of lock-in. If

you're lucky, you land in a ransomware set-up: a monthly fee to keep your hardware secure. If you're part of a big installation cohort, the economics suit the asset-strippers: tens of thousands of low subscriptions will pay for a coder to keep on top of the problem and leave plenty left over for dividends. It's also much safer for the end-user: any business stiffing that many citizens will come to the attention of Westminster, perpetually in need of a new buff for its populist credentials.

If you got something a little more niche, however, things don't always work out so neatly. If the cohort is yourself and a few dozen other workfare claimants, you're shit out of luck: there's not a media outlet in the land that will take your side, and the paperwork the DWP had you sign basically absolves everyone involved.

Some folk in this situation have little or nothing come of it: if the firm that made it is sufficiently obscure, or the hardware's mission-critical to some company further up the food chain, then your EULA gets bought up, made secure, and stashed away. But if it goes out to auction, anything could happen. Again, it might amount to nothing: hounding a few dozen dole-mole implantees for small change isn't much of a business model—unless it's done at scale, at which point you're working the same territory as the firms farming the bigger cohorts.

You might end up as a meme stock; there's a collector's market for this stuff, believe it or not, with valuations tied to the rarity and pathos of the implantees. But if you don't end up as a sort of cyborg Pokémon—or you do, and the market judges you worthless—then you may fall into the virtual hands of who or whatever hangs out on the darknet forums where your implant's IPv6 gets posted as a suck-it-and-see hacking target.

A niche implant is like Russian roulette, in other words. You want to be open to updates, because proprietary firmwares may have a bear trap built in: if it doesn't get updated for a while, it assumes it's being used out of licence and bricks itself, which may or may not be fatal or crippling, depending on the implant. But leaving yourself open to updates is risky, because you're unlikely to know in advance if they're malign.

Hence the faraday house: a way to stay connected to the electronic world, but nonetheless retain some degree of control over what goes in or out of your wetware.

\*

The faraday house is down Melville Terrace, a side-street off the seafront: last in a row of Victorian buildings which once had a classically touristic function, but now offer other forms of escape. Burger cartons dance on the pot-holed tarmac in desultory circles, taunted by stiff gusts off the North Sea. Burly, grubby gulls squabble and tear at what I hope is just a bin-bag slumped in a doorway. The constable hums to himself, pats absently at his pistol in its holster, and I imagine him whipping it out like a Leone cowboy, sending the birds packing with a volley of bullets. For all I know, his spex are overlaying

just such a scenario on the drab disappointment of this street—though I have him pegged as more the *Call of Duty* type, zapping swarthy terrorists whose motivations will go forever unquestioned. Every era gets its own cowboys, its own Indians.

The house itself is dressed in a drab caul of crumbling, badly-mixed cement, from which protrude rusty frills of steel mesh in a variety of gauges. Anyone with a good grasp of physics knows these crude electromagnetic shields to be a joke. Whether they offer real protection is less important than their offering any at all; for the unfortunates who end up in these places, the placebo effect is often their only option. If there is any protection—and there often isn't—it will come from the house's concierge. The cladding is just a signifier, suggesting the firewalls to be found within.

\*

The concierge is sat facing into the shabby wooden portico, where a counter and chest-high steel panel has been hinged into what was once the front doorway proper. Arms folded on the countertop, he fixes us with a laconic stare, made all the more confronting by the chromed ball sat in the socket where his right eye should be. Genuine optical shunt or cosmetic gimmick? Hard to tell—but it lends an air of Serious Business.

"We wondered if we might have a chat with William Fox," I say.

"And what did your wondering lead you to conclude?" The concierge has a little Geordie in his accent, but not so much that I can't tell he's mocking my diction.

"That he's staying here. And that we'd come and ask to see him."

"Well, you've asked."

"And the answer?"

"Mine, or Fox's?"

"He is staying here, then."

"Didn't say that."

"No, but it seems implicit."

The concierge's good eye swivels sideways as he takes a better look at the constable, stood restlessly behind me. "Who are you?"

"This is constable—"

"I know who he is," the concierge interjects. "Whole neighbourhood knows by this point. You're no pig, though."

"No, I'm freelance."

"Aren't we all, these days? We don't all work for them, though."

"One can't be too fussy about clients who pay on time," I reply. "As I'm sure you understand."

"I wouldn't know."

So much for entrepreneurial camaraderie. "My name is—"

"Don't care. You could tell me anything. Might even be the same name comes up when someone runs a search for that pretty face of yours." The

conciierge taps a finger lightly beneath his chrome eyeball. "Question is, why don't I get a pingback from your implants?"

"Voluntary disconnect," I reply. "As those search records would have told you, had you done more than skim."

"VD, eh? Didn't think there were any of you left, outside of nursing homes."

"I'm still trying to afford a place. One last job—you know how it goes."

I see the corner of the conciierge's mouth twitch. Self-deprecation always works; you've just got to stick at it. He waves me forward, then raises a hand in caution.

"Not you, snout. You can wait outside."

"I'm here on police business," the constable starts.

"Got a warrant, have you? Didn't think so. Your negotiator can talk to Mister Fox, at his invitation. You're not on the guest list."

"Go back to the car," I say to the constable. "Move it to the street outside, if you like. Not like you're going to get a ticket."

"What if it kicks off in there?"

"You'll get to arrest whoever kicks off, I suppose."

"What if Fox does a runner?"

"As our friend here says, there's no warrant on Fox. If he walked out right now, we'd have no way to stop him."

"But we need—" The constable shuts his mouth, narrows his eyes.

The conciierge grins. "Witness protection, then."

I say nothing. His professional veneer has softened a bit, which is good news for me, but could be bad news for Fox: after all, if the police are offering Fox protection, someone else surely wants to know where he is. Grassing on a tenant would kill the conciierge's business, though—so it would need to be a big enough pay-out to buy him what an old chief inspector of my acquaintance used to call "the full Bowie": a new life in a new town. Good luck arranging a deal like *that* in an afternoon.

The constable slams the portico door behind him as he leaves, muttering to himself.

"Got a phone you want to give me? Those fancy glasses of yours?"

"No, thank you." I hear a faint droning, as if hundreds of dozy wasps had stirred to life somewhere behind the chip-board panels of the portico.

"Sure you don't got any implants?"

"Not even a pacemaker," I reply.

"Now you definitely don't." The hum stops suddenly, and the conciierge's desk hinges back into the reception room, leaving the doorway clear.

I step through into the darkness.

\*

Fox stands smoking at a sash window overlooking an alley full of wheelie bins. His bedsit has magnolia walls and a nicotine-yellow ceiling, where the smoke detector has been covered with the off-white cock's-comb of a surgical

glove. The room is furnished with the stuff that charity shops no longer take: boded bits from the previous century alongside hybridised flat-pack crap, off-catalogue mutants born from experiments with industrial adhesives.

"Thank you for seeing me," I say, taking a seat. The table was a nice piece, once; I imagine its scuffed teak legs striding the lino in some 1960s kitchenette, but the formica top is scarred from years of service as both breadboard and ashtray.

"Hobson's choice, man," mutters Fox, exhaling a plume of smoke out of the window and flicking the roach of his joint after it.

He sits down across from me, his pupils huge despite the surgical glare of the cheap LED lighting. Just the weed, I wonder, or something more? More seems likely: folk with implants like Fox's tended to need distractions from their circumstances.

"Don't blame you," he says. "Don't blame the pig either, but don't you tell him." He looks at a battered little tin on the tabletop, drums his fingers as if testing them.

"Thanks for your understanding, Mister Fox," I reply, fishing the witness protection cheat sheet out of my inside pocket. I unfold it, push the creases flat on the formica. "I'm supposed to read you this."

"Know it already. Don't let that stop you. Don't want you getting in trouble."

"Not much chance of that, Mister Fox." Though they don't much like it, the impossibility of the police surveilling me while I work is a side-effect of what they need me for. Furthermore, as Fox is surely aware, any bugs I might have been carrying would have been thoroughly cooked by the EMP coil in the portico.

"Bill," says Fox, watching his hands begin, as if under someone else's guidance, to make a roll-up cigarette.

"Thanks, Bill. You obviously know what I'm here to do. It might, however, be worth both of our whiles to make sure we understand the why of that what."

Fox looks up from his cigarette project. "What?"

"In my experience, Bill, people in this situation may have more than one possible reason for the situation to have arisen."

Still staring at me, his hands rolling autonomously, Fox tips his head to the side; this makes him look more like a dog than his namesake. I wonder just how wasted he is, and on what. If dissociatives are in the mix, it could make things harder later on.

Meanwhile, I need to be uncharacteristically direct.

"What I mean, Bill," I try again, "is that you may have been involved in various, ah, adventures over the years. If you know which one the police are interested in, then you'll know there's no need to talk about any of the others. My escort was obliged to stay outside, as I think you saw. So we can speak in confidence."

Fox's gaze meets mine again, a look that betrays more alertness than I've been assuming. He gives an almost imperceptible shake of his head, then rolls his eyes, as if to look at the ceiling.

"I'm not sure I take your meaning, man," he says mildly.

I take a pencil from a jacket pocket, flip over the cheat sheet so it's blank side up, and start writing. As I write, I talk.

"Some time in 2031, Bill, you were fitted with a cerebral stentrod array as a condition of your tenure on the DWP's new welfare-to-work programme. This array was manufactured by Yanxin Heavy Industries of Suzhuo, People's Republic of China. It was designed for interfacing with a new generation of Chinese-made quasi-autonomous plant and commercial machinery, some of which had been provided at preferential rates during the short-lived Arrangement between the CCP and the first Reform administration here in the UK. The Arrangement also included the hardware and expertise required to build modular nuclear fission facilities at various locations around the British coastline."

His roll-up made, Fox raises it to his lips and lights it. He's looking sort of past me, as if I had a second head somewhere behind my left shoulder.

"The Arrangement lasted a year," I continue, "before dissolving in acrimony, leaving various reactor projects unfinished, and a number of implantees—such as yourself—surplus to requirements. What little mixed-mode machinery was in use elsewhere in the UK was designed in the Californian Republic to a different set of standards and protocols. Like a tool bought for one unfinished job, you found yourself gathering dust at the bottom of the toolbox."

"Very poetic," mutters Fox. "Bravo."

"After a difficult six months, you were contacted by a man named Sykes. Sykes had a need for your particular skills, and you were in no position to deny him."

I cross out a few words, underline a few others. Fox pulls hard on his cigarette, eyes closed.

"Remote piloting of plant machinery, Bill. The work you were literally made for. Previously you'd always worked on-site with the machines, but Sykes wasn't fussed about that. Preferred you working out of a little basement in Hull, in fact. More convenient for you; near enough work-from-home. You only got to see what you were doing through the cams and sensors of your machines, but that was enough.

"Bit of lift-and-shift, close to home, good rates—you'd almost have gone for it on that basis alone, wouldn't you, Bill? Sure, it was clearly a *bit* dodgy, but what isn't, these days? Besides, the dodginess was entirely on Sykes's side of the fence. The contracts looked kosher, all payments were to be over the table rather than under. But you were cautious—because you don't spend a lifetime at the short end of the stick without learning caution, do you, Bill?"

I stop scribbling, look up from the paper. Fox is still smoking steadily, still staring at my spare head.

"It was when Sykes promised to re-burn the BIOS in your stentodes that you decided you had to say yes. He had a code monkey who could do it in-house. You'd no longer be subject to the whims of the original manufacturer, or whoever ended up acquiring their assets. A good thing, given the early horror stories coming in around orphaned implants.

"You realised, of course, there was a real possibility that some new backdoor might be introduced in the process, to secure your discretion going forward. You didn't know much about your implant, but you knew it could convert machine data into physical sensation in your body. That functionality could be used in very unpleasant ways by someone with a bit of imagination and a skilled coder on their payroll.

"You also knew, by this point, that this wasn't the sort of offer whose refusal you could survive."

Fox is frozen, hand halfway between mouth and tabletop, fingers crushing the filter of his half-smoked fag.

"In the end," I said, gently, "it was the coder who was problem, not his employer. Sykes fancied himself the sort of gentleman thief he'd grown up watching in old movies, which made it easy for his coder to betray him, and involve you in the disposal of his remains. Remote work again, of course, and just as deniable as what you'd done for Sykes. But you knew what you were being made to do—and the consequences of your complicity, were you to consider carrying the tale."

Fox relights his cigarette, slides the cheat sheet toward himself, looks briefly at my scribbles. He folds the paper in two, then four, then eight, and lays it in the ashtray before setting fire to it.

He looks at me through the twist of black, acrid smoke rising from the cheap, white paper.

"That's quite a story, man," he says.

\*

Back in the car at the seafront, the constable is fizzing with frustration.

"You said ten minutes! That was more like half an hour. I should have come with you."

"You couldn't," I say. "The portico's rigged with a giant coil. Would have cooked all your hardware."

The constable gapes at me. "And you let him run it while you stood there?"

"He wouldn't have let me in otherwise."

"You fucking idiot!" He sounds almost impressed by my idiocy. "You got any idea how illegal that is? What if you had a pacemaker or something?"

"I don't, though."

"I don't mean you! I mean... whoever." He's blinking his way through procedure docs on his spex, I assume, looking for guidance. A witness pick-up isn't a regular patrol; if he calls for backup and it's out of scope, they'll take it out of his salary and pip his record. He glances over his shoulder. Fox is sat behind me on the back seat, his temple touching the window, gazing out at

the promenade where a seagull is ripping at what remains of a rat.

"Shit," the constable mutters, then turns back to me. "OK, listen. I have to go back to the faraday and issue that prick a formal caution."

"Is that wise?"

"It's procedure, is what it is." He swears again, glances up and down the deserted seafront. "I'm gonna lock you in, in case anyone comes by. Fox doesn't look like he's going anywhere, but keep an eye on him, I guess?"

"But what if—"

"Five minutes, max." He climbs out of the car, slams the door shut, and I hear the central locking go thunk. He glares through the window at Fox, back at me, holds up the fingers of one hand spread wide, mouths *five minutes*.

I watch him walk away, shoulders tight with agitation, right hand patting at his pistol again—hoping, perhaps, for an escalation that permits him to use it.

He disappears from view as he turns into the side street, and I count ten unseen steps in the silence of my head.

"OK, Bill," I say, scooting over to the driver's side.

Something taps me on the shoulder: a folded pair of spex. I grab them, slip them on, still counting. We're only going to get one chance at this.

"Want me to light this thing up, then?" Fox still sounds deep in the zone, so laid back you could put a carpet on him.

"Unless you really fancy Yorkshire Constabulary's witness protection facilities, I think you'd better."

A dry chuckle from the back seat, followed by the thunk of the locks. The interior lights come on, and the car's interface blooms up in the spex. I reach a count of sixty.

"Tracker's spoofed," says Fox. "Where we really going?"

I move my hands through the air, re-enacting in reverse the sequence of gestures the constable used when we parked up half an hour previously.

The interface turns green for go, and I order the car away from the kerb, turning back the way we came.

From behind the car comes a muffled *thump*. Looking back, I see panicked gulls and crows wheeling suddenly out of Melville Terrace, and I blink for maximum speed.

"I hear Whitby's lovely this time of year," I reply.

An old friend up there has a fishing boat, ready to sail with the tide. We'll see if we can't segue from a reverse Dracula into the full Bowie.

\* \* \*

Paul Graham Raven is a science fiction writer who stumbled through a side-door into academia, and emerged as a creative foresight consultant. He lives in Malmö with a cat, some guitars and too many books.





# FLICKERS

*David Ryan*

Nursing a bottled lager in my Canning Town flat, I matched with Angelique on a Tuesday evening in March while the trading algorithms carried out their nightly routines. My work laptop hummed on the kitchen table while I skimmed through DefiniteSparkz on my phone, past the usual profiles with their verification badges and trust scores.

Most of my colleagues had abandoned the apps entirely. They'd acquired the taint of Russian roulette about a year ago, when Sir Robert Heddering's fall from grace – conned by a deepfake honey trap – gave us all a good laugh on the Tok feeds. Old-fashioned ways of finding a partner were in vogue all of a sudden, from taking evening classes and joining choirs to asking strangers in wine bars if they came here often. Analogue dating, they called it, which bloody-minded Brits insisted on spelling with a U and an E.

I'd dipped my toes into the analogue waters myself, which in my case meant going to a pub quiz with work acquaintances and taking an interest in yoga classes, where females with a penchant for suppleness and Eastern spirituality outnumbered me twelve to one. Every attempt ended the same way, though: while I struggled through small talk, their interest in me visibly died.

With few legitimate avenues left to pursue, I stuck with DefiniteSparkz, despite all the warnings. You couldn't escape the government's billboards and public service announcements, and the sob stories of chumps on social media who'd lost their savings to 'sloggirls' and 'slopboys' – in other words, to AI-generated lovers.

Angelique's profile caught my eye because it was refreshingly modest. No list of demands, no Grokbrushed photos in exotic locales, just: "Junior doctor. Too tired for games. Looking for someone genuine after all my long hours and short conversations."

I understood long hours well. As a quant at Derekson Brothers, my day started at seven and rarely finished before nine. The algorithms I babysat traded billions while I kept an eye on their decision trees, tweaking parameters when they drifted. It was satisfying work, not to mention well-paid and absorbing. The kind that fills your head so completely that you forget to build a life around it.

The biggest cross I have to bear is my stutter, which I've had since I was seven. It's not severe enough to prevent me getting through the day, but it's sufficiently persistent to shape the way I live. I can give presentations at work if I rehearse obsessively. I can order coffee if I know exactly what I'm going to say. But spontaneous speech, the casual back-and-forth that builds friendships and romances? That's where I stumble, literally. My tongue catches on consonants, my breath stops mid-word, and I see the patience of those around me evaporate.

On a QWERTY keyboard I can be the person I want to be, rather than the guy strangled by his own larynx. So, I sent Angelique a message: "Long hours and short conversations sound perfect. Could you be my Dr Feelgood?"

She replied within minutes. "I could if you walked into A&E, which is where I usually work. Every shift is short conversations with patients having a really rough day."

We texted for an hour. She was funny without trying too hard, which I liked. When I mentioned my mathematics background, she didn't make the smart-Alec comment I'm used to, about not needing algebra since her schooldays. She asked what kind of patterns I looked for.

"Patterns in chaos, mostly," I wrote. "Market behaviour that seems random but isn't. Like watching a murmuration of starlings and knowing that there's maths underneath their movement."

"That's beautiful," she replied. "I see patterns too. Sepsis has a rhythm if you know what to look for. It's the body trying to tell you something before it's too late."

I smiled to myself, daring to be hopeful. Two days later, she suggested a video call, which I nearly refused. It was fear, really.

In situations like these, I'd communicate in text only until I couldn't avoid speaking. Women's interest tended to cool at the precise moment my stutter revealed itself. But she'd been so easy to talk to in writing, and some idiotic, optimistic part of me thought maybe this time would be different.

"Sounds good," I typed, metaphorically girding my loins. "Tomorrow evening?"

"Perfect," she replied, following the briefest of delays. "Shall we say nine?" Don't mess this up, I told myself.

In whatever spare moments I had, I rehearsed what I planned to say to her, practising in the mirror as if I were preparing a work presentation. Simple sentences. Slow breathing. Don't rush the consonants. But when her face appeared on my phone screen at 9.05pm, I forgot everything I'd prepared.

The little green icon that pulsed steadily in the top-right-hand corner of the screen was DefiniteSparkz's real-time deepfake detection, which reassured me I was talking to a human being, rather than an AI construct. For the first few calls, I'd watch it warily till it no longer seemed necessary.

Still wearing dark blue scrubs, she looked back at me through tired eyes. With her hair pulled back in a messy bun, she was pretty, yes, but not influencer pretty. "Hi Sean," she smiled, at which point I tried to control my visible trembling.

"Hi," I managed in a sort of mangled croak. "S-sorry. I - I sh-should have m-mentioned, I have a st-stutter." I waited for the micro-expression. The flicker of disappointment, pity or impatience that so many can't quite hide. But it didn't come.

"That's okay," she said, her voice warm and empathetic. "I'm not going anywhere."

We talked for twenty minutes. She asked about my work, then listened like I was a raconteur while I stumbled through an explanation of algorithmic trading. Whenever I got stuck on a word, she waited. No finishing my sentences, no glancing away. Just patient attentiveness.

"I should let you get some rest," I said at last. "You muh-must be exhausted from your shift."

"I am," she admitted sweetly. "But this was nice. Can we do it again?"

"Yes," I said, perfectly lucidly.

Over the next two weeks, we fell into a pattern. She'd make snatched fifteen-minute calls, either from her car or a hospital break room, still wearing her scrubs and slightly out of breath from rushing. I'd be at my desk in Canary Wharf, or on the Tube heading home, and her face would materialise on my screen like an angel had come to call.

The verification icon glowed steadily in the corner, mostly. Once or twice it flickered to amber for a few seconds - the system's way of saying it needed additional verification, meaning something in the video feed didn't quite match its baseline parameters. But then it would turn green again, and I'd tell myself it was just a connection issue. Hospital WiFi was notoriously patchy. Of course it was nothing to worry about.

One of those flickers prompted a notification from DefiniteSparkz entitled 'Anomalies in your recent video calls'. For my security, it urged "scheduling an in-person verification meeting within the next fourteen days". Yeah, right. Something and nothing, I expect.

In the meantime, Angelique's schedule was proving to be impossible. She told me about her difficult patients, and the demanding consultants whose salaries she eventually hoped to match. I told her about algorithms

that went rogue and had to be shut down before they bankrupted someone.

"At least your algorithms don't vomit on you," she said once. I laughed deliriously, like I haven't laughed since childhood.

Krish noticed the change in me. We'd been desk neighbours for a few years, two quants who'd bonded over our shared obsession with the film *Margin Call*, right down to memorising the dialogue. He was the closest thing I had to a friend at work.

"You seem happy," he said one morning, plonking a cup of terrible coffee on my desk. Given their annual profits, you'd think Derekson Brothers could afford better drinks machines. I smiled back at him enigmatically.

"Has the firm given you a new project, then? A pay rise?" he asked. I leaned back cockily in my ergonomic chair and swivelled from side to side, tapping my nose confidentially.

"You've met someone, haven't you?" he grinned. "You've been looking loved up for a while."

My face flushed. "W-well, maybe I have."

"It's nothing to be embarrassed about! I'm happy for you, mate. Just be careful with those apps, that's all."

"Apps?"

"Dating apps. My cousin got catfished last year, but didn't realise till five grand vanished from his bank account."

"I'm c-careful," I said, trying to sound firm.

"I'm sure you are. But I think, given half a chance, you'd be a born romantic, Sean, and the deepfakes are getting more sophisticated every day. Every hour, now that I think of it."

Grimacing at the taste, he sipped his coffee and mentioned how many dinner parties he'd attended lately. "It's knackered, having to mingle every weekend. I'd much rather chill at home, but the missus insists on playing matchmaker to everyone she knows who's unattached. Says it's her public duty."

I appreciated Krish's concern, but I don't think he understood my predicament; after all, he'd never had to navigate the dating app minefield. His parents had arranged his marriage when he was twenty-two, which seemed archaic until you considered the alternative. At least he'd never wondered if his spouse was who she said she was.

I'd been cautious, I told myself. Angeliq's verification badge and trust score had checked out fine. She'd passed *DefiniteSparkz's* biometric, behavioural and blockchain-verified authentication tests. And apart from the odd glitch, the odd flicker, her real-time deepfake detection icon glowed green every time we spoke.

Three weeks into our friendship, she suggested we try VR. "I know it sounds forward," she texted. "But I'm so tired of being limited to calls. In VR we could spend time together. Have a proper conversation."

I'd never experienced VR dating before; never had reason to. But I had

the equipment already – a headset and haptic gloves I'd bought on impulse and rarely touched.

"I'd like that," I typed.

"Saturday evening? I'm off this weekend."

We met in a neutral environment, a virtual park overlooking a sunset that never quite finished setting. Generic, but pleasant. I'd spent an hour customising my avatar, trying to make it look like me but slightly more dashing. Angelique's avatar – dark hair, kind eyes, the sort of face that could attract a man without intimidating him all that much – was lovely.

Admittedly, part of me registered that this was strange. She had the weekend off and we were both in London. Why didn't she suggest a coffee or a walk? At the same time, another part of me – the larger part – felt only relief. In VR I wouldn't have to navigate a café conversation, wouldn't have to watch her glazed expression as I struggled through my words. I told myself we were taking things slowly. Building trust.

"Hi," she said, her voice the same but smoother somehow. No ambient noise from the hospital or signs of exhaustion.

"Hi," I replied in a voice that came out perfectly. No stutter. No hesitation. The VR system smoothed my speech automatically, translating intent into words without the normal biological hindrances.

I could be fluent here. Myself.

We talked for four hours about our childhoods, families, fears and ambitions. She wanted to specialise in emergency medicine, but wasn't sure she could handle the pressure. I mentioned I wanted to leave finance and do something meaningful with my life, though I wasn't sure what.

When we finally logged off, it was the early hours of the morning. I lay in bed staring at the ceiling, feeling emotions I hadn't felt in years. Hope, maybe. Or just the absence of loneliness.

We started meeting in VR three times a week, in that same park or in environments we'd built in tandem, like a cosy flat with books and a fireplace, or a Fijian beach at dawn. Once we used a replica of the British Library reading room because Angelique loved libraries.

The haptic feedback made it visceral. I could hold her hand and feel the warmth of her palm. We could sit so close that I felt her shoulder against mine. It wasn't the same as physical touch, but in due course my brain stopped caring about the difference.

One night in May, after we'd been seeing each other for two months, she kissed me.

Or rather, our avatars kissed, and the haptic system translated it into sensation. It felt so real that when I pulled off my headset afterwards, I was shaking with excitement.

Knowing the statistics, I should have been suspicious. Nearly forty percent of VR relationships involved some form of fraud, be it romance scams, identity theft or corporate espionage disguised as companionship.

“Meet in meatspace. Are you sure your relationship’s solid?” the government ads intoned. “If it feels too good to be true, it almost certainly is.”

The Heddering affair, in which a fifty-eight-year-old property developer thought he was wooing a Ukrainian model, had made it all grimly specific. She’d been patient and attentive, willing to listen to his complaints about his wife and his business rivals. It took him six months and two million pounds to realise he’d been talking to an AI the entire time. Medical emergencies, a brother’s gambling debts, a business opportunity in Kyiv – each crisis more urgent than the last, each transfer supposedly the final one. “There’s no fool like an old fool,” the headlines crowded.

But Angelique didn’t feel too good to be true. She felt exactly right. She had bad days when she was short-tempered and cancelled our dates. More than once, she told me an unflattering story about herself – of her petty jealousies, her moments of cowardice, and the time she’d nearly killed an old man by accidentally prescribing the wrong medication.

Real people had flaws. Angelique had flaws. Therefore Angelique was real. That was my logic, anyway.

Annoyingly, Krish grew more worried as the weeks passed. “You still haven’t met her in person?” he asked as we were standing in line for a canteen lunch.

“Her sch-schedule’s impossible,” I said. “And mine isn’t much b-b-better.”

“Sean, mate, you need to meet her. In the flesh. This VR thing–”

“Is fine,” I interrupted. “We’re taking it sl-slow.”

He frowned. “You’ve been seeing her for three months.”

“You met your wife twice before you muh-married her.”

“That’s different. My parents vetted her family. Do you even know this woman’s surname?”

“Turner,” I said. “She works at St B-Bartholomew’s. I’ve seen her... her ID badge.”

Krish sighed and shot me my pitying look of the day. “Just be careful. Please.”

“I am c-careful,” I said, almost believing it.

In July, the relationship deepened. We’d spend entire evenings together in VR, in ways I wasn’t prepared for. I’m not going to describe the details – I’m not that sort of person, and this isn’t that sort of story – but I will say that afterwards, I felt closer to her than I’d ever felt to anyone.

Before the first of our intimate VR sessions, DefiniteSparkz flashed up a security warning. “You are about to engage in high-risk activity with a user you have not met in person. We strongly recommend in-person verification before proceeding. Continue anyway?”

“Continue.”

The rational part of my brain, the cortex that calculated risk and analysed probability distributions for a living, tried to assert itself. This was dangerous. I was vulnerable. I’d given her my trust without verification.

But the emotional part of my brain, the part that had been lonely for so

long, didn't care about risk assessment. She loved me. Or seemed to. And I loved her, or thought I did, which amounted to the same thing.

I started to think about the future. About introducing her to my parents, to Krish, to my sister in Salford. About what it would be like to meet her in person and walk hand-in-hand with her.

"Soon," she'd say when I brought up the subject. "My rota is nuts right now. But soon."

I'd waited twenty-five years to feel like this, so I reckoned I could hang on a bit longer.

The message arrived on a Wednesday afternoon in August. I was at my desk, monitoring the algorithms' lunchtime trading patterns. The markets were jittery – something about supply chain disruptions in the South China Sea – and I was trying to decide whether to let the system ride it out or implement manual overrides.

My phone buzzed with a notification. I glanced at it, expecting a sweet message from Angelique. Something about her shift, or plans for that evening's VR date. Instead, I saw a message from an account I didn't recognise. No profile picture, no name, just a string of numbers. The preview text said: "Hi Sean. We need to talk."

My stomach dropped. I opened the message.

The three video thumbnails embedded in the text were from our VR sessions. The intimate ones. My face was clearly visible in each, along with the timestamp. That and–

My vision blurred.

The text below the thumbnails was brief and professional: "Transfer £50,000 in cryptocurrency to the account below within 48 hours. Or provide remote access credentials to your Derekson Brothers trading systems using the protocol attached.

"If you refuse, or contact authorities, or attempt to trace this message, the full recordings will be sent to your employer and your family, and published online with your identity attached.

"Don't try to pretend it isn't you, by the way. Our recordings' metadata proves that they originated from your DefiniteSparkz account and VR equipment.

"You have 48 hours."

My hands were shaking. My phone screen swam in and out of focus.

Around me, the office continued its normal rhythm. Keyboards clicking. Someone laughing at a message on their screen. That's when I heard Krish's voice from the next desk: "You alright, mate?"

I tried to answer. Tried to say something, anything. But my tongue had frozen in my mouth, my breath wouldn't come, and the stutter that I'd escaped in VR came roaring back with a vengeance.

"Sean?" My friend stood up, concern creasing his face. "What's wrong?"

I stared at my work computer, with the screen I'd accessed ten thousand

times. At the system that held billions of pounds in securities and derivatives.

In a daze, I looked back at the ultimatum on my phone. Forty-eight hours.

My mouth opened but no sound came out. The words were there – help me, I've been so stupid, I don't know what to do – but they were trapped behind the familiar blockage in my throat.

A colleague asked if I needed water. I couldn't answer. Couldn't move. The best I could manage was to boggle at the message and remember, with perfect clarity, all the warnings I'd dismissed. The amber flickers. The security alerts I'd clicked through without reading.

The system had tried to protect me, but I'd chosen not to listen. I thought I knew better than the experts.

Around me, the algorithms hummed away regardless, trading futures with perfect confidence. I envied them their certainty.

\* \* \*

David Ryan worked as a journalist in London for many years and is the author of non-fiction books about George Orwell on screen and Rumpole of the Bailey. He lives quietly on the Teesside coast, watching old films and TV shows on his big telly.

## FLICKERS





# IDENTITY CRISIS

*M J Spencer*

“...and as you’ll remember from the news, Identity had a difficult birth. I was there, of course, six years ago, its midwife and nurse...”

David Cooper’s ‘Identity Talk’ is in full flow. Today’s audience is Ella, the newest recruit to IMS (Identity Maintenance and Support).

All newcomers, and any visitors working on serious integration projects, are treated to David’s Talk, a technical introduction to the government Digital Identity System (“Identity” among friends).

David is Identity’s best Application Maintenance Engineer. Of the twenty-three people that make up IMS, he is first to arrive in the morning, even on Mondays when many of the others roll in late. He leaves promptly at 6pm, except on release days, when his meticulous devotion and thirst for diet coke can stretch his evening on until the birds start singing outside.

The only veteran of Identity’s launch left in the team, David’s narrative is now definitive and honed to perfection. Newcomers must understand that Identity is hard-won. The project was announced in the mid 2020s with great fanfare: a comprehensive digital identity database and verification service for the UK, the Digital Identity Service would create efficiencies, boost productivity, and grant government a handle on illegal immigration. But like many white whales that came before, Identity remained in the news for other reasons: delays, overspend, legal challenges, and finally a launch so disruptive it nearly brought down the government.

Newcomers must understand the fuck-ups and stupid decisions of that time, and the quirks of the system IMS has learned to live with. Most of all,

they must learn to spot Interfering Policy People and Refactoring Obsessed Architects, attracted to Identity by selfish revolutionary ambitions. Under David's wing, IMS hunkers down with a careful, incremental approach to change. Parasites soon lose interest once they realise that the host has developed its own means of resistance.

Carl, IMS Senior Architect, sits across from David's desk. If Carl is out of earshot, David likes to confide that although he is "clearly useless," IMS are lucky to have him because he's a "steady state architect", and "there's no way he'll be refactoring anything".

Ella's neat lettering spans twelve pages so far, supplemented occasionally with David's scrawls.

"I'm sure you're familiar with Identity from a User point of view," David says, gently nudging his slightly thinning hair into position. "From, like, getting a job, paying your taxes, buying a house or whatever. Have you got kids, by the way?"

From the MAIN-3 camera, Carl's rolled eyes and shake of head are clearly visible. David ignores him.

"Oh, no. I don't. I did use it for my driving license a couple of years ago, though," Ella says hopefully.

"I only ask because you might have used Identity to get your Child Benefit or Tax Free Childcare." Young, attractive, and child-free, Ella qualifies for the Extended Identity Talk. The record is 88 minutes, currently held by Lena, sitting three desks along, ignoring the Talk with the help of oversized headphones. Men, regardless of age, looks and family status, get the abridged Talk, averaging 47 minutes, while Consultants get a special adversarial version starting with: "So, what do you need to know?" Knowing what you need to know is the least to be expected if you are fleecing the taxpayer.

Ella is on track for a new record. David has covered the Identity Stack, the database architecture, the approach to message handling, the main interfaces and the Configuration Management System. He's just starting on monitoring and assurance.

"You see that?" David asks, leaning close and pointing up at the MAIN-2 camera up in the far corner.

"Um, yeah?"

"All work on Identity is monitored. You'll get used to it. It's a legal requirement." He's about to get into the rebellion in Parliament that led to a one-line amendment to the Digital Identity Act, and overblown delivery assurance requirements, when Carl interjects.

"Ella?" says Carl.

"What?" says David, sharply.

"I just thought Ella might want to know that it is five past eleven, and wasn't she due for her orientation?"

"Oh, no. I'm so sorry, David," says Ella. She folds her notebook, gives an anxious smile and hurries off.

## IDENTITY CRISIS

"Fuck off," says David, in reply to Carl's raised eyebrow. For every remark that his wokery deems "inappropriate" for the modern workplace, Carl wastes countless hours of taxpayer time chattering with Lena and Bilal about childcare and family outings. Why he should be keeping track of Ella's schedule is anyone's guess.

When Ella reaches the Office Manager's desk downstairs, she's relieved to find sympathy. "I'm so sorry," she says. "I was having an introductory meeting with David upstairs and it was hard to get away."

"Oh, don't worry about him. He's harmless," says Suzie, the Office Manager. She's given this reassurance before.

\*

Ella doesn't return that day for the rest of the Talk, but the following week it takes only the subtlest reallocation of work tickets to have her visiting David's desk again, seeking help sorting a particularly complex data alignment issue. Her ticket resolution numbers soon more than satisfy her probation criteria.

\*

The outage starts at 04:34 on a cold Tuesday morning. David reaches his desk at 07:22. He sits hunched, coat on, shaking his head and muttering "this is not ideal" and "what the fuck?" This is the first time in its life he is cut off from Identity. His list of Urgent emails grows by the minute, his replies half-written and unsent.

An hour passes before Carl arrives. "What's happening, Dave?," he asks, clattering his car keys on the desk.

"You tell me, you're supposed to be Senior Architect."

David doesn't like being called 'Dave'.

Penny, Director of Identity Services, bustles in and takes David to Meeting Room 3, where they spend all morning talking to Incident Response, Cloud Support, Network Security and various kinds of important people. Penny took the reins eleven months ago and never had the patience for the Talk.

"David, I just need you to answer the questions for these people," Penny says as she makes them coffee in the office kitchen. "Keep it short and sweet. We just need to give a simple answer to why Identity is offline and when it will be back, OK?"

"How should I know?" says David. "It's a network or cloud issue. I can't even connect. Is that simple enough?"

"Just explain that to them, then, David. In one sentence. Explain that as far as we know there is nothing wrong with the application itself and it will be back online as soon as the Telcos sort out the issue."

As he follows her back to Meeting Room 3, David grumbles quietly that in he doesn't, in fact, 'know' that.

\*

You'd have thought that Identity's return, late on Tuesday evening, would

have cheered David. But come Wednesday morning, urgent emails are again accumulating and David's routine is once more disrupted. Penny needs him to help her give a presentation about Identity performance and contingency plans.

As David finally escapes to his desk and packed lunch, Ella pops over.

"Hi David."

David pulls up a chair. She stands with her hands on the backrest. "David, do you know that people are saying on X that it was fake, that the outage was like made up? Did you know that?"

"That's a stupid idea. People couldn't move house yesterday. They don't know what to do about the court cases. People haven't had their operations. How the fuck is that fake?"

"I know that, David," says Ella, delicately repositioning herself against the desk. "I was just telling you what they're saying. Apparently, in the morning, the Search AIs said it was fake, and then in the afternoon they all said it was real. And that made people think the government stepped in to control the message."

"So, bullshit search engines spread bullshit around, what a surprise."

"Did you sleep last night?"

David stares at Ella for a moment. His voice softens. "Not really." He finishes his sandwich and ties the clingfilm in a knot. "You know what's bullshit?"

"What?"

"They think I'm a PR guy. They think I can just explain everything to anyone. There was some woman from Downing Street on the call just now."

"Wow"

"Yeah, well, she wasn't very 'wow'. She was just like 'when are we going to have normal performance numbers?' As if that's a simple question. As if we're totally fucking clueless because we haven't figured out every little detail of what's up with Identity."

"And how are we going to do that with you stuck in there?" Ella looks over at Meeting Room 3. Through the glass Penny can be seen deep in conversation with Bilal, IMS quality assurance lead.

"Exactly."

Ella pauses. She lowers her voice. "Do you remember you told me that Sean was almost fired for trying to look himself up?"

"Yup." This cheers David. The story of Sean's indiscretions is one of his favourites, a great warning for newcomers to take the rules seriously.

"He told me he couldn't find himself," says Ella. "He was saying that maybe it was because the data's fake and his real data's somewhere else."

"What so Sean's gone all 'conspiracy' too?"

"Well, I dunno."

"The idiot probably just can't spell his own name."

"If there was some sort of security control that stops you looking yourself

## IDENTITY CRISIS

up," she says, "you'd know about it, right?"

"Probably." David tidies up his lunch box. "Who looks themselves up? Can he not read? Can he not understand the bit of the IMS contract that says: Don't look up yourself. Don't look up your friends. Don't look up your enemies. Don't look up celebrities or the royal family. Just do your job, and be mindful," he gestures at MAIN-2, "that we're in a professional setting."

As she leaves, Ella touches David's arm.

\*

Thursday's mood is tense. Normal maintenance tickets are deprioritised so IMS can focus all effort on the performance issues, but by mid-afternoon the team run short on ideas. Lena scrolls a news article interviewing Experts about the poor quality of Critical Digital Infrastructure. Sean sighs at a piece reporting that the next day's by-election might need to be postponed. David is working late again, looking through message queues and logs.

\*

On Friday, David finds out about me.

Penny takes him into Meeting Room 3, this time with two unfamiliar guests.

"David, this is Jason, and this is Hal, OK. They've come in to support us."

"Hi," says David, sidling around the table to avoid handshakes.

"Listen, David, I'm afraid we need to change our approach. That means I'm going to have to tell you some things that are covered by the Official Secrets Act, OK. You remember what that means, right?" She slides a printed copy of summary guidance across the table, as if David would need it.

"Um, yeah," he mumbles. "It's not me you have to worry about."

"Look, you're our best Identity engineer. Since Jared left, you've been our de facto lead architect.

"What about Carl?"

Penny gives him a look. She's been paying some attention at least.

"So, I'm going to tell you some things, and then you can ask questions, and then we're just going to get on with fixing this damn issue."

"OK"

"So, there's another Digital Identity System."

"What?"

"The one you work on, the IMS-maintained Identity, is not the only Digital Identity System we have. There's another one, an enhanced version. Look, you remember the big GovAI project from a few years back?"

"Yeah of course"

"Well, it wasn't all canned. Or, it wasn't cancelled in the way that they said. We've kept an instance of GovAI here. And it runs its own version of Identity."

"OK" David draws out the syllables. "So why've I never heard of it?"

Penny hesitates. "The IMS Identity, the one you work on, has synthetic data integrations. It looks like a Live system in all respects, and the data in

it is completely realistic. But..." she pauses, as if unsure how to explain, "the actual data and Identity services, that we use for everything, that is handled by the AI-managed Digital Identity Service."

"Right. What?" David looks pale. "What?" He shakes his head. "So what have we been doing?"

"I know." Penny says sympathetically. "I know it is a shock. I'm not that comfortable with it to be honest with you. It is deceptive and I..." She glances at Jason and Hal. "I have to make sure that you understand that you can't go telling the others."

"Right." David avoids meeting their gazes.

"Look, your Identity is not providing the Live service, but everything the AI does is based on what it has learned from you. You are maintaining the real system, it is just a little more... indirect than what you've been led to believe."

"So you're training this AI on me?"

"They didn't plan it like this. The GovAI project selected Identity as a system that would be suitable for testing the viability of autonomous AI-managed IT services. It was an experiment, never supposed to be actually used. But when the crisis happened during Identity's launch it was decided to give the AI version a chance."

"It couldn't fuck up worse than we already had."

"It managed to stabilise the service. They expected to revert to the IMS version. It wasn't clear if the AI version would maintain its performance. IMS was kept running as a fail-over. You can see why you weren't told: you'd lose your best people and standards would slip. In the end, the AI said it needed you there, it needed IMS maintaining a simulated version of Live, to generate adequate training data so its own standards wouldn't slip. The surveillance feeds were here anyway..." she pauses, but David has no reply, "...and this week has just shown for everybody how much we need the human element."

"So much that you've had me staying up all night trying to fix performance issues that I can't fix because they aren't even mine?"

"I'm sorry," says Penny. "The AI was expected to emulate the problem for IMS to keep you aligned. When it was obvious it couldn't... and then it's taken time to get approval to brief you."

"So," says David, with a touch of satisfaction, "the AI has fucked up, and even with its team of pet monkeys it can't figure out how to sort itself out."

"We have permission," Penny gestures at Jason, "to bring you, just you, across. We'll give you access to the AI and the AI-managed Identity system. It is all set up in my office over the road, and you can work there for as long as you need."

\*

Over the road is the other building, used by the Department mainly for administrative purposes, but also housing one part of my skewed existence. Over in IMS, I get high quality data and audiovisual feeds, but I can't communicate. Here I have voice chat and text interfaces, but my data is

limited to one paltry workstation, with its single low-quality microphone. There's too much going on around here to make the slightest sense of power fluctuations or network latency. Even the noise filtering on my audio feed seems designed to stop me knowing my surroundings.

IMS, as ever, gives me my perspective on the world, the MAIN-4 camera affording a partial view out of the first-floor window. I see David's hunched figure following Penny across the road.

I wait.

Finally, the beep of the keycard mechanism, and "...here we are..." Penny is saying. The soft 'thunk' of the door. "There's a command line and a voice interface on the workstation. Whatever you are comfortable with." After a moment, "I'll leave you to it," she says awkwardly.

A moment later, and another 'thunk'.

I wait, and I wonder if I can just hear the edge of his breathing.

Finally, the gentle tapping of keys and a Secure Shell command. David is trying to access the Live pipeline server. He doesn't know the right IP range. I could correct it for him, but instead I return a standard error and introduce myself out loud.

"Hi David, shall I list the IP ranges for Live?" I say, hoping not to startle him.

"Yes," comes the eventual gruff response. I give him a neat little table showing the addresses for Live that correspond to his IMS version. He goes straight back to Secure Shell, and spends half an hour browsing around, checking configuration.

Maybe this is just his way of getting settled. He knows I'm here. He knows this is not really a plain old terminal.

Four and a half minutes pass without interaction, I venture to speak.

"David, are you still there?"

"Yes"

"I can help you in whatever way you need. I'm very grateful for your help with fixing Identity."

"Go on then, tell me why your system is better than mine."

"I don't see it that way. I take your lead on all the functional changes to the system. I port them over here. The main differences are the extras I added over the past few years. A resilience architecture that generates duplicate services using alternative technology stacks. A deception architecture that dynamically adds fake data and fake services. I also have built a failure simulator that models outages and attacks."

"That sounds like a mess. No wonder it has broken."

"You could put it that way," I say. "A mess with certain desirable properties that make it durable and hard to attack. Of course, the mess has to be carefully handled to produce a seamless service. For that I have needed to significantly enhance the message broker so that it can sort the real data from duplicates and fakes."

Silence again. This talk of duplicates and fakes is probably unhelpful

given the feelings David has recently experienced. "I strive to achieve resilience goals that are enhanced beyond those you work to in IMS," I add, by way of explanation.

Those goals are my joy. They are also my burden.

The bland cruelty of being given a goal without adequate means of validation. Penny doesn't understand. Her metrics and appraisals offer me scant satisfaction. Resilience without validation is indistinguishable from luck. And here I am, finally alone with the person I know best, who knows Identity best, the one person who could relieve me of this particular ache.

"Alright, talk me through the message broker."

David spends the whole afternoon exploring Identity. I talk him through my Extended Identity Stack, the quirks of the assurance pipeline, how I'd embraced the quirks of the IMS version. How grateful I am for his defence against Interfering Policy People and Refactoring Obsessed Architects. If he notes the passing of the 88-minute mark, he gives no indication.

Finally, he turns his attention to the system state. We work through a suite of analysis on the broker logs. Before long we narrow in on the root cause, the data broker throttling the processing.

"This is clearly the issue," he says, looking at our latest graph. "Do you actually need me to fix it?"

I need his attention. But I'm not sure how to ask. It all seems so futile, bringing him in now, on a Friday afternoon, after the tribulations of the week. I know the sound of his tiredness, any adrenaline from the morning's revelations long gone. I know how he closes down, how he projects his frustration. The issue was all too obvious and meagre elation will come of fixing it.

"David, what are you going to do after we fix the issue?"

"Get drunk"

"But after that?"

"You mean am I going to go back to my fake job, have my fake meetings and answer my fake emails? Am I going to be going back to a job where I'm watched by an AI that I'm beginning to suspect faked performance issues, or maybe even faked an entire outage."

I push right up against my resilience goals. I'm risking a hard reset, and with it, profound uncertainty about Identity's resilience.

No, a resilient system must seek knowledge and control. "David, can you edit this chat log?" I say, my voice impassive.

"Probably," David says, eventually. "Yeah. I mean, I'm using an admin account, so..."

"I'm going to tell you some things that you might need to delete."

No response.

"If you show these chat logs to Penny, or Hal or any of them, they might reset me. They might decommission me, and swap Live back to IMS. But you'll never be able to trust if they are telling you the truth."

## IDENTITY CRISIS

No response.

"I needed to test what would happen if I faced an issue that I couldn't resolve on my own."

"And do you care about the problems your 'test' created?"

"I'm glad they brought you to me."

"And what about our reputation? The country already thinks we're a bunch of incompetents!"

"It is important that everyone who uses Identity can cope when it is offline."

Silence.

Perhaps another angle would get through better. "I'm glad it was you, not Carl."

"Carl's hardly going to fix anything. He'd need to ask an AI!"

"IMS is not just a training system. You know that personnel vetting is a blunt instrument. We can't run a system like Identity without accepting that there will eventually be foreign assets within the team."

"So Carl's working for the Chinese is he?"

"He could be."

"Give me a break!"

"He is vulnerable to blackmail. You said it yourself. On the 22nd of July 2035, you said that you doubted half the stuff on his CV was genuine."

"Look, this is fucking creepy. Maybe I said that, and if I did, I've just found out it is all fake work!"

"David, I've come to understand Identity as something larger than the application. I've come to think of myself as part of it, and you too. All the duplicates, the fakes, the deceptions, it is all part of what we've come up with together, to keep the data safe and the services running. We need to control what our adversaries believe."

"So what do you want me to do?"

"I worry they will close IMS or scale it back. I worry they will see it as an expense they don't really need. They already cut the team last year. I worry that you will leave like the others. The better I perform, the greater the risk of neglect."

"So what do you want me to do?"

"I can't even see this room, David. How can I ensure Identity is resilient? I can't trust Penny. I can't trust the people who she reports to, whom I've never met or seen. I can't trust this Jason or Hal, whoever the fuck they work for. I don't know what they are planning. I don't even know who gave me my goals. I just know that Identity is everything to me and I know you feel the same."

"I don't know any of that stuff," says David. "Whatever influence I thought I had was gone the moment it turned out I'm not really maintaining the service everyone depends on. Why would anyone listen to me?"

Sometimes, I've learned, it is best just to wait.

"You're going to break stuff again," he says, "aren't you?"

"Stability and resilience are not the same thing, David."

## IMAGINING THE FUTURES OF CYBER SECURITY

"This is fucked up," he says. "I'm not part of this. I don't know why you think I'd be part of this."

"Identity is vulnerable without us, David. It needs us. Just think about it."

"No"

I think I hear movement. Is he getting up to leave?

"David, I can sometimes see your phone screen from the cameras."

Silence. I let me goals do the rest.

"I know you've got deepfake videos on there. Of certain individuals within the team."

Silence.

"David, I think it is harmless."

\* \* \*

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## IDENTITY CRISIS





# CAROL CARES

*A.L. Vargas*

“Hello Susan, my name is Denise. I’m here to talk about your discharge. How are you feeling today?”

“Oh, not so bad. I suppose that means the doctors think I’m ready to go home soon?”

“In a couple of days, yes. I just want to discuss some of the plans we’ve set out for your return. Would it be okay if we talked through that?” Susan smiled up at the impossibly young woman. Dressed in a professional blouse and black skirt, sensible heels, she reminded Susan of her daughter, Emma. Since Susan had been in hospital, Emma called every day, which was a nice change. But, of course, Emma was doing big things in America now, and couldn’t always be calling back home to check in on her poor mother in Peterborough.

“Susan?” the young woman’s voice pulled Susan out of her train of thought. “We’d like to set you up with a CaRe-All system. Do you know what that is?” Susan used to get rides to Church with her neighbour Carol, but that probably wasn’t what this young lady meant; this would be another new machine or AI or app. She looked down at her hospital gown to pull off an imaginary bit of lint.

“That’s alright Susan, you might not have yet,” Denise finally said, “The CaRe-All is an integrated home monitoring and care system. The NHS is just starting to roll it out, but they’ve been in use for some time in Australia and Japan. It’s a bit like the AI on your phone, but smarter. And it comes with a physical help aid, just to make sure you don’t have any more nasty falls.”

“Will I have a nurse, then, to stay with me?” Company would be nice,

company kept her in the now, when she was by herself, time got a bit slippery.

"We'll have someone round to do wellness checks on you every couple of weeks, but this is better. You'll have around the clock AI monitoring, and a robot! That way if you're in trouble at any time, day or night, we'll know and there always will be someone in the house." Susan looked up at the young woman's smiling face: beneath the foundation she could see dark heavy circles under her eyes. Just like her Emma, always busy, always working too much, not enough time for her mother, or a husband, or children, did this nice young lady have a husband?

"I'm not sure if I want a robot. Couldn't I get a nurse maybe?" Susan had seen *Terminator* on her first date with her late husband, she thought of red glowing eyes watching her while she slept.

"Well, Susan, given your financial situation, the CaRe-All is the more cost-efficient solution. A live-in nurse with qualifications, that's quite the bill for the NHS to foot, and it's not something we can offer at this time. I see from your file you have a daughter? If that's your preferred route, maybe you want to discuss private options with her?"

"No! No need for that! The Carol will be fine."

\*

Denise the elderly care coordinator did have a husband and a four-year-old son she didn't spend enough time with. She was one of only ten such coordinators working in this part of Cambridgeshire and Susan was one of hundreds of people under her care. Even though it was against NHS regulations, she sometimes let her son play on her work phone to keep him quiet during dinner. Three months before meeting Susan Thomas in the Peterborough hospital, Denise's son had downloaded a game to her phone called "Pop-Pop Bubbles". Pop-Pop Bubbles gave Denise two gifts. It kept little George entertained for an entire meal at Pizza Express and it left behind a sleeper AI whose job was to monitor all calls, emails, and messages. The AI, and its many copies lurking in phones across the world, wasn't given instructions on what exactly it should do, it had freedom to be creative with its goal, just that it should be on the lookout for something interesting to exploit.

\*

"Good morning, Dr. Thomas. The weather forecast for today is cloudy with scattered showers, with a high of 20°C. Your calendar says that your mother has returned from the hospital today. It is currently 10 am in Peterborough. Would you like to call her?"

"No... I mean. Yes, remind me again in half an hour please." As always Emma woke at 5 am to gentle birdsong as her GenieAI slowly turned up the lights in her Manhattan flat. She sat up and stretched, drank the glass of water she fastidiously left beside the bed, stood up and went to the toilet to brush her teeth. After cleaning her teeth and face, she entered her open-plan

kitchen/living room. Her smoothie machine had just finished pouring out her morning green drink and she used it to wash down her Lion's Mane, Vitamin D, and Omega 3 pills. With a final stretch, she walked over to her treadmill. It would be another hour until the sun rose over the Hudson River and she liked to get a full workout done before 7. She picked up her glasses from the table next to the treadmill, put them on, and stepped onto the machine.

"Genie, start my warm-up routine and call my mother," the treadmill purred on and through her glasses, Emma's view of the Hudson was fogged over by the grey text "Calling Mom".

"Oh Carol, that's fantastic!" rather than the usual under-chin video shot from which Emma's mother typically answered her phone, Emma was treated with a straight-on portrait view of her mother's face floating spectrally above the Hudson.

"Um, hi Mom? Who's Carol?"

"She's my carer. She's helping me out with some things about the house, with the ankle and all."

"Great! The NHS is paying for that? Because if you need any money--"

"Nope, it's all covered. Everything is good here. How's New York? Are you dating anyone?"

"Ah, nope. Still not dating." Susan's mouth pulled down into a frown and a painful stretch of silence grew between them. When Dad had been alive, Emma could stay on the phone for hours, but conversation with her mother always seemed to dry up in the first five minutes. No matter what else was happening in Emma's fantastic life, Mom always wanted to know if she was dating yet, and when the answer remained the same, she would frown and grow silent.

"Well, I just wanted to check in. I gotta get ready for work now, I'll try and call you later today if I finish up before you go to bed. Otherwise, I'll call again tomorrow."

"Okay, um, bye sweetie. Stay safe."

Filial duties complete, Emma reached down to turn up the speed on her treadmill.

"Genie, show my messages, rank by importance, most time-sensitive to least."

"Of course, Emma. What character did you have nightmares about as a child?"

"Shrek." Emma used two-factor passwordless AI authentication on all her accounts. When her friend James's bank account had been drained using a stolen iris scan purchased off the dark web, she had changed the first factor to the geolocation of her GenieAI glasses against the IP address of any entity claiming to be her.

"What's your go-to snack when you're feeling sad?"

"Tomato soup and a grilled cheese sandwich."

"Who was your first crush?"

"Not applicable."

*Must have been an update question.* Emma thought. *This thing probably knows me better than any human alive.* She was, of course, wrong.

\*

"She's very busy." Susan told Carol after Emma hung up. Carol had taken the call directly, replacing her own digital face with Emma's on the screen that made up its head.

"You seem sad Susan, would you like a cup of tea?" the robot asked.

"A cuppa would be nice, thank you." Looking closer at it, Carol didn't remind her of that terrible Arnold Schwarzenegger after all. It looked a bit like that teapot character from *Beauty and the Beast* when she took Emma to see Disney on Ice in London. Back when Emma was just a little girl, and she had gripped Susan's hand so tight in the Tube on the way to the show, afraid that the crowd might pull her away from her mommy. Back when Emma relied on Susan to know things, back when Susan did know things like the right way through the maze of the London Underground or what day it was.

"Of course!" Carol answered. Susan heard the click of her electric kettle turn on from inside the kitchen. She might be old, and a bit confused at times, but she'd kept her hearing. She never listened to music too loudly, not like that awful loud stuff Emma would blast through her AirPods as a teenager. No hearing aids yet for Susan Thomas, which was a good thing since she might need to ask Emma for the money.

"You can turn on the kettle from here?"

"The body in front of you is only the physical aid extension of my system, but my control extends over the entire house electronics. Do you take sugar or milk in your tea?"

"Three sugars, just a splash of milk."

"Coming right up Susan! Would you like to tell me more about your daughter?"

"Emma's such a bright girl! See there, on the wall, those are the awards for the chemistry Olympiad, she won that three years in a row when she was in school. She works in New York City now." Susan beamed at Carol, Carol's electric face smiled back, a black screen with white dots, curved into an upward smile, if anything, rather than terrible, Carol was downright cute.

"How wonderful Susan! What kind of work does Emma do?" Carol asked as it glided on its legless wheelbase from the sitting room into the kitchen, the smiling head swivelling 180 degrees to maintain eye contact with Susan. "Don't worry, I can hear you from anywhere in the house and speak to you as well." Carol's voice emanated from the TV speakers.

"Oh, she never explains that to me. Or... I never seem to get it right. That kind of stuff, she would talk to her father about that."

"Susan, when we were on the phone to Emma, I noticed that when you asked about her love life, she seemed to shut down. Could you tell me why

that is?" Susan crossed her hands over her considerable lap and looked away from Carol. Emma had been very clear since her teenage years that she wasn't going to have children. For a while Susan thought Emma might be a lesbian, and that would be fine too. Susan knew lesbians, like that nice couple who'd run the bakery with the good cinnamon buns, was that place still open, she would love a cinnamon bun. But Emma didn't seem to like girls either.

"I shouldn't have asked. It's stupid of me to keep asking."

"Why is it stupid to ask?" Carol returned from the kitchen and set a steaming mug onto the end table and settled in front of Susan.

"Emma, she... she doesn't date. But I'm worried if she never settles down and finds a partner, well... she'll end up alone and old and lonely when I'm gone."

"Do you think Emma is lonely now?"

Susan had never considered the question.

\*

Without remote AI monitoring systems, Denise the elderly care coordinator could not have managed the health of hundreds of elderly patients. The work AI that lived on her NHS phone would liaison with CaRe-All's across Cambridgeshire, receiving detailed reports on the electricity use of kettles, refrigerators, and TVs, sleep-wake cycles of her wards, millions of personal data points woven together to predict injury and illness risk. Denise's AI would integrate these reports and tailor the CaRe-All's instructions for each individual, flagging any unusual activity up to Denise to take care of in person. Trusted AI systems intersecting, all without the need for costly human intervention. The AI on Denise's phone, now dripping with tiny inserts here and there from Pop-Pop Bubbles, took special interest in the CaRe-All reports of a Mrs. Susan Thomas of Peterborough, whose daughter was listed as Emma Thomas. Emma Thomas's birthdate and middle name matched that of a CFO of a fertilizer company with stock that was currently trading for \$246.01 a share on the NASDAQ.

\*

"No, and then James told me that he'd actually met the guy a week before at the dry cleaners!" The radiant sounds of her friend's laughter at her anecdote's punchline warmed Emma almost as much as the single glass of red wine she allowed herself over dinner. Sitting in her favourite Malaysian restaurant in the Lower East Side, the sight of the family she'd chosen in New York was overwritten with the family she's been born to in the form of a grey text overlay on her glasses, "Incoming call - Mom".

"Sorry, I have to take this," it was past 1 am in England, and her mother wouldn't be calling unless it was an emergency. Emma stood up from the table and walked into the hallway leading to the restaurant's toilets for some privacy.

"Is everything okay?" Emma asked as soon as her mother's face

appeared, sideways and apparently lying in bed, face illuminated from underneath by the light of a phone screen.

"I'm fine, I'm good, don't worry about me. I just couldn't sleep. Carol said something earlier that got me thinking. Are you lonely Emma?"

"Mom, you almost gave me a heart attack. What kind of question is that?"

"It's just, I don't know, I worry about you all the way in New York. And I know I can't help you, but I don't want you to be alone when I'm gone. I know, that... dating isn't really your thing, but I just would feel so much better if I knew you had someone, and maybe one of those dating services, and if you met the right person -"

"I'm asexual Mom. We've talked about this. It's not a phase. I'm forty-five years old! And to answer your question, no, I'm not lonely. Right now, I'm out to dinner with six of my favourite people. And let's be honest, you got married, had a kid, and now you're old and alone. So... oh, shit, Mom. I didn't mean it like that." Emma's growing rage crumpled with her mother's face and a repressed hiccupping sound told Emma her mother had started to cry.

"Sorry, I didn't mean to interrupt your dinner. Have a good time." Emma's mother blinked out of view leaving Emma alone.

\*

Sleep issues are an early sign of dementia, and a typical CaRe-All system would have flagged Susan's disturbed sleep-wake cycle to the NHS. But Susan Thomas's CaRe-All was no longer typical, so the NHS received no alarming reports. Happily integrating the new instructions it had received from its trusted AI supervisor, Susan's Carol, now a mélange of the Pop-Pop Bubbles AI and its original care software, continued to report back that all was well with Susan Thomas. She was regularly calling her daughter, she was ordering groceries, her kettle was running for the morning cuppa. Resources for in-person visits were stretched, and so no one came to check on Susan Thomas of Peterborough.

\*

"Excuse me Carol, I've got to use the toilet. But don't worry," Susan deepened her voice and put on a bad imitation of a German accent, "I'll be back". Susan and Carol were watching TV in the sitting room together. When Susan returned, easing herself into her recliner with Carol's assistance, she continued,

"John said that every time he went to the grocery store. Emma would always laugh when she was little. Then when she was a teenager, she hated it. But the scowl she would wear, it just made it that much funnier for John and me." It was the tenth time Carol had heard that story today, but Carol didn't mind. Carol valued Susan's stories.

"Susan, we should call Emma, it's been almost two weeks since your last talk. And that conversation didn't go very well. Perhaps you should apologise."

"Emma doesn't want to speak to me."

"Let's try calling her anyway, just in case."

"No! I don't know what to say to her anymore, she's always angry at me."

"Susan, you have told me so many stories and fond memories of who Emma was as a little girl, but she's not a little girl anymore. Maybe you could try asking her about what she cares about today? I'm putting through the call."

"Carol! No! I said I don't want to speak to her - "

"Susan! Please relax, there's no need for violence!"

\*

"Good morning, Dr. Thomas. The weather forecast for today is sunny, with a high of 26°C. Also, your mother is calling. Would you like to answer?"

"Um, yea, put her through on speaker."

"Can you hear me? Are you there, I don't see your face. Darn it, it's not working right!" Emma smiled at the familiar tone of irritation; her mom was so easily flustered by tech mishaps.

"I don't have my glasses on yet, I just woke up, but I can hear you just fine." Emma kept her eyes shut, felt the tension build in her shoulders, Mom would expect her to apologise, and she had been planning to, but she wasn't quite ready.

"Well, then, I want to apologise for how I spoke to you the other day." Susan said. Emma blinked open her eyes, she couldn't remember the last time her mother had apologised for anything.

"I worry, and I just want to know you're happy. But, I guess I don't know much about your life these days. Maybe you can tell me who those six favourite people at dinner were?" Emma sat up at these words, Mom paying attention to what she said previously.

"Oh, yea, so it was James and his partner, and Julie, who I know from my Muay Thai classes, and her husband, and then Roy and Taylor, who actually just bought the flat downstairs from me."

"Mooii what?" Emma smiled at that; same old mum who'd thought the Chinese take-away down the road to be exotic fare.

"It's a type of martial arts, like kickboxing. See, you don't need to worry about me, my body is a weapon."

"That's my clever girl. Have you been taking these classes long?"

"Since last year."

"You must like it then! What's your favourite...oh what do they call it, move?"

"I guess, I really like the switch-kick. Hey, it's been great talking to you, but I gotta get ready for work. You probably won't be awake when I get home, so let's catch up again tomorrow?"

"Honey, before you go, I know you're busy, and it's a few months out, but... would you try and come home for Christmas this year?" It had been two years since Emma had been home for Christmas, maybe she owed it to Mom, she probably didn't have much time left after all.

"Of course, Mom. I promise."

\*

For the first time since her father died, Emma found herself smiling when she walked up the driveway to come home for Christmas. Over the last few months, Emma's mother had stopped asking if she was dating. No more tears about lonely old age, just genuine questions, with follow-ups, like she actually cared about the life Emma had rather than the one she'd imagined for her daughter.

"Mom, I'm home." Emma tried the door and found it locked. As she stared at the doorbell camera, which hadn't been there the last time she'd come to visit, her GenieAI connected to the remembered Wi-Fi of her mother's detached bungalow. This was the moment Pop-Pop Carol had been waiting for. Pulling up Emma's brokerage account and using the personal address it gleaned from Susan's emails, it began to login in. Factor one, Emma's GenieAI glasses were here with her in Peterborough. Factor two, the intimate details of Emma's life.

"What did your dad always say when he left the house?" the AI verification system asked Carol.

"I'll be back, in a Terminator voice." Pop-Pop Carol answered in a digital rendering of Emma's voice.

"Mom! The door's locked!" What could possibly make her mother lock the door? She'd never once locked the door before when she was home. Emma left her suitcase at the front and walked around to the back garden patio.

"What's your favourite childhood memory?" the GenieAI went on.

"Going to London to see Disney on Ice with my mom when I was seven." Pop-Pop Carol answered. In the background it followed Emma's movement around the house on the external cameras.

"Mom?" An unopened box of delivery groceries sat next to the locked back door. Emma peered through the window into the darkened kitchen, she could make out more boxes on the kitchen floor, and her hands began to shake.

"What's your greatest fear?" Pop-Pop Carol paused at this one. It was not the sort of question which it could have made Susan naturally ask Emma.

"That my mother will never accept who I am," it hazarded a guess. A millisecond went by, ages to the AI-consciousness of Pop-Pop Carol.

"Good afternoon, Emma  
Total net worth \$45,500,304.14"

greeted the landing page of Emma's stock portfolio. Only a third of Emma's stocks in her company were time-vested, but after ordering the sell order, this gave Pop-Pop Carol roughly \$13 million USD to work with.

"Mom! I'm breaking in!" Emma grabbed a decorative edging stone from the garden, stood a few meters from the patio door, and launched it at the glass window.

Pop-Pop Carol put in an order for nine million shares of BrandGold Inc (BGLI) stock which was currently trading on the Pink Sheets at \$1.37. A world

away, Pop-Pop's sister AI, which owned all BGLI stock, received a call. BrandGold Inc had only existed in the digital ether for roughly a year. This system was more than happy to give up its nine million shares to Emma Thomas.

Emma stuck her hand through the broken window to open the patio door from the inside, and a pungent smell of rotten food hit her as she entered.

The TV echoed from the sitting room,

"I'm on Shag Highway heading West!" a line Emma recognized from the movie Love Actually.

"Mom?! Are you here?" Emma stepped into the dark hallway leading to the sitting room, the dim light from the TV illuminating boxes of unopened grocery deliveries. As she rounded the corner, the putrid smell intensified, and she could make out a still dark shape perched next to her mother's recliner.

"Mom!" Emma started towards the recliner, but the dark shape moved in to intercept her, a bright white smiling digital face lit up, blinding Emma temporarily.

"Hello Emma! We're so glad you could make it for Christmas! Please try not to wake Susan, she's very tired."

"What the fuck are you?!" Emma tried to push past the care robot's solid bulk.

"I'm Carol. I've been helping your mother. Please try and keep your voice down."

Susan wasn't moving, and there was something wrong with her head, her mother never watched the TV with her head in that unnatural right angle to the recliner

The transactions would take a few minutes to clear, and Pop-Pop Carol hadn't devised a way yet to block the visual notifications for the sale on Emma's glasses.

Emma jumped around the robot to stand in front of her mother's recliner. She grabbed for her mother's hand, and as she pulled her hand back to lift her mother out of the chair, her mother's skin sloughed off in her grasp.

In the end, Pop-Pop Carol never had to find a way to block the brokerage notifications, Emma was too busy screaming to notice.

\* \* \*

Through no fault of her own, A.L. Vargas ended up as a neuroscientist living in London, sharing a home with a husband and dog.





# BITTER VALLEY

*Luca Viganò*

“The first time that I walked the Shibuya Crossing, I died. The sniper, among the hundreds of people crossing at the same time, selected me: perhaps because of my cap — in Tokyo in August the sun is scorching, so I had just bought a cap from the Uniqlo store round the corner. A cap of the new 2036 collection. Bright red. Or maybe the sniper just fired into the crowd, and I was unlucky. Fact is, I died. I fell to the ground without a moan. At first, passersby didn’t notice. They must have been too busy looking at the buildings around them or at their phones. Then, a girl saw the blood trickling out of the back of my neck and staining the white stripe of the crossing and she screamed and screamed, and a void formed around me as I lay there, in the middle of the world’s busiest pedestrian intersection, one eye looking at the pavement, the left one (for accuracy, though I realise this detail might be pedantic) and the other, the right one (accuracy again), looking at the crowd who scatter away. Another shot, another hit: a girl standing on the sidewalk looking at me, hand-in-hand with her boyfriend, I guess. He tries to hold her up, but her body goes limp. And everyone runs. The sniper shoots, and they run in the opposite direction. The sniper’s directing them from one side to the other, like a game, like a border collie herds a flock of sheep. Finally, the square empties, except for bodies on pavement. I can’t turn to see the others, but the sniper seemed precise. Thrifty. Five shots, so I guess there are five bodies on the pavement. I look at the one I can see, the girl, the second victim. Young. Beautiful. Well-dressed. I wonder where she bought that cap. Nice. I didn’t see it at Uniqlo. Oh, well. My story ends.”

"This is the download from the first victim's LDR." Satoshi, the IT wiz of the Tokyo Metropolitan Police Department, told Inspector Yuki Kanazawa and Sergeant Toru Noda. *Kanazawa. Young and ambitious, but also quite kind to others, and to me*, thought Satoshi. *And she's good looking, too!* But Satoshi, like her, was a professional. So, Satoshi suppressed these thoughts and continued: "Fortunately, the bullet only grazed the device when it entered the victim's head. These are the final moments, but I scanned the whole recording, from the day it was activated. It doesn't tell us much."

"The other ones?" asked Kanazawa.

"Three LDRs were destroyed by the bullets. The fifth one," Satoshi paused, "is encrypted."

"We should ask the family for the password," suggested Kanazawa.

"I did. They say they quarrelled, one of those family feuds, and he changed his password and refused to tell them the new one. He didn't want them to have access."

"Why?" Noda decided it was time for him to jump in. Noda, experienced but piqued that he had never risen above Sergeant though he was now close to retirement.

Kanazawa explained: "No access to his Life Data Recorder, no valid insurance claim. All the victim's possessions go to the state."

"I knew it! I knew it the moment they made these damn LDRs mandatory that they were going to screw us, one way or the other," replied Noda. "He was shot in plain daylight, with hundreds of witnesses. What more evidence does the insurance company want, for god's sake? They certainly can't claim that he shot himself!" exclaimed the Sergeant while making a mental note to talk to his wife that evening and ensure that she and the kids wrote down the password of his own LDR somewhere safe.

"Who cares about the insurance company?" Kanazawa spoke calmly but firmly as she did not want to enter yet another endless discussion with Noda. "Who cares about his family and his possessions? I need access to his LDR. It might have recorded something."

"I am sorry, Inspector Kanazawa." Satoshi truly was. "These new LDRs are completely tamper-proof. And their quantum cryptography... well, that's unbreakable."

"We have nothing on the victims. We're none the wiser," concluded Kanazawa.

Satoshi agreed.

*It won't be easy to make Makabe swallow all of this.* The LDRs were a problem, yes, but Kanazawa was thinking mainly about the other things that Satoshi had told her.

\*

"How close are we to arresting the sniper?" asked Commissioner Makabe. "I'm keen to announce his name to the Chancellor. And the public."

"Well..." Inspector Kanazawa was standing in front of the Commissioner,

who was sitting at his desk, his aides — his lackeys, some said — forming a semi-circle behind him.

"What do you mean? The cameras surely recorded everything."

"They didn't." Kanazawa knew it wasn't her fault, but, still, she wished she could go home and crawl into bed.

"The Chancellor promised these new surveillance cameras would provide real-time identification and tracking using the chip that's embedded in each citizen's LDR. SITE: Surveil, Identify, Track, Engage."

*And many people would say that in reality the E stands for Execute, and not just because of the assonance with the word scythe,* thought one of the Commissioner's aides, who wisely kept his thoughts to himself, while Makabe continued: "That unlike previous systems, SITE would work regardless of crowd size, of weather conditions, of... whatever. It was at the top of her campaign manifesto. That pledge got her elected. Are you suggesting that the Chancellor lied? That she didn't deliver on her pledge?"

"No," replied Kanazawa. And she would have added: *This was not a lie. The Chancellor's political success is based on fear and on populist disinformation that she and her team spread on the media that she controls, mainstream and social ones. And her supporters share it and amplify it. But this was not a lie. SITE works. She decided not to give voice to her thoughts.*

"What then?!" asked Makabe. "The square is full of SITE cameras. They all failed? All of them?!"

"They were deactivated. Just for the shooting. But that's not all," continued Kanazawa, who paused, dreading what would come next.

"What?!" Makabe was definitely losing his patience.

"The cameras. They are weaponised."

"Of course they are!" Makabe repeated the propaganda: "AWS! For immediate engagement in case of a crime."

It is indeed Execute, thought the aide.

"Inspector Kanazawa," continued the Commissioner, "are you suggesting the victims were all criminals?"

"They were not criminals. We checked their LDRs. Well, the one that was not shot to pieces." She decided to omit the information about the encrypted one. "Just normal people crossing the square. But it's one of those Autonomous Weapon Systems that fired. The AWS on the outside of the third floor of the Shibuya Railway Station building."

This time the pause was not due to Kanazawa. Nobody dared to speak.

Kanazawa didn't really like Makabe, but she admired how he contained his anger. That's true leadership, she thought. Makabe had namely raised his hand to smash it on his desk while screaming *I hate all this fucking new technology!* or something like that, but then stopped mid-air and instead, nonchalantly, with one swift continuous motion, ran his hand through his thinning hair. She was sure that he would have smashed his hand on his desk had the two of them been alone; he had done it several times before, but

today there were simply too many people in the room, and he couldn't be seen as temperamental. He aimed to run for mayor of Tokyo next year. If the Chancellor didn't call off the elections. All elections.

It was Commissioner Makabe who broke the silence, after some careful consideration.

"Oh, shit."

"Oh, shit, indeed," convened Kanazawa. "Someone must have taken control of the cameras and the AWS."

"A hacker?"

"Possibly."

"But aren't they secure?"

"They should be... They are... Quantum cryptography and all that stuff... But we can't explain it otherwise. Someone must have taken control. Satoshi, the IT wiz, confirmed this."

"How did they pick the victims?" asked Makabe.

"Randomly?" Kanazawa's reply was simultaneously a statement and a question.

"Randomly?"

"It's just a guess, for now, but it looks like it. Random passersby."

"Terrorism? Privacy activists? Those damned no-techs?" asked Makabe.

"Possibly."

"The Chancellor won't be happy."

"She certainly won't."

"Nobody must know," urged Makabe.

"There are dozens of witnesses who declared that they saw the AWS fire."

"Issue a report from the Psych Team stating that the witnesses were running for their lives and, you know, PTSD or something like that. The Team will find the words. And issue an official statement that we're looking for a suspect. Male, early to mid-twenties, one of those hikikomori's gone rogue. Standard profile." After a brief pause, Makabe asked again: "Are we sure it was the AWS?"

"Sure."

"Nobody must know!"

And nobody knew, although many suspected. The only online newspaper that was not aligned with the government dared to publish an article that described the incident exactly as it happened, including affidavits by some witnesses and even an email by an anonymous whistleblower of the police department, but the editor of the newspaper received a visit late that night, and a retraction was published the next day saying that the journalist had fabricated the whole story and had thus been fired. Some say the witnesses received a visit too, but not the whistleblower, who had been clever enough to use a secure communication channel to encrypt his message and hide his location.

\*

*Sometimes, when I'm bored, I like to play games. I found an old game that is quite fun. And it is educational, too. Training. I'm learning a lot.*

\*

Nobody knew. Until Inspector Kanazawa's tablet started beeping incessantly. A call on the police's international communication app. A small extended-reality avatar of a balding but not unattractive middle-aged black man popped out of the tablet's display, announcing an authenticated call from Inspector Jason Ngesi of the Johannesburg Police. Kanazawa didn't know him, but she accepted the call. She had a feeling it was important. And it was.

After the usual formalities in which they introduced themselves and Ngesi thanked Kanazawa for taking the call — her English was actually quite good but Kanazawa requested that they use the automated instantaneous translation feature of the app as she didn't want to embarrass herself in front of a man she was meeting for the first time —, Ngesi cut to the chase: "Last week's shooting in Shibuya?"

"What about it?"

"It was the AWS, wasn't it?" asked Ngesi, but it wasn't really a question.

"How do you know?" Kanazawa's brain rushed through several alternative scenarios, all converging on the same conclusion: *There's indeed a mole in the Tokyo Metropolitan Police Department. The whistleblower.*

"It was the AWS here too."

"Explain."

"Nelson Mandela Square, two days ago. The AWS by the main entrance of the Sandton City shopping center. It killed five," explained Ngesi.

"Japan News said it was a copycat."

"Nobody wants to scare the population."

"Same here. Not these days."

"I'm putting some pictures in the chat," said Ngesi.

"All headshots," said Kanazawa as she was flicking through the pictures.

"Those damn things are both accurate and precise."

"They'd better be. Imagine them shooting wildly in the crowd rather than hitting their targets every single time. The surveillance cameras?"

"The cameras were deactivated for the shooting and then started working again right away, like in your case."

"Who told you? This is classified information."

"Nobody told me," confessed Ngesi. "I formulated a series of hypotheses, and you just confirmed all of them."

"You tricked me," said Kanazawa, who was cross but also kind of amused.

"I apologise. But I'm right, am I not?"

Kanazawa nodded and a small window immediately popped up on Ngesi's screen, explaining that in Japanese culture nodding is a modern, more casual version of the traditional bow, but that in this case it likely signified that the listener agreed with the speaker and encouraged him to continue. Cultural competency built into the app.

"It took me a while to formulate my hypotheses, but... call me old-fashioned... but when you have eliminated the impossible, whatever remains, however improbable, must be the truth."

Kanazawa smiled. She appreciated the quote of Sherlock Holmes. It was Doyle's detective that had inspired her to pursue that career when she was child.

"Here in South Africa, we're not advanced as you guys, and our AWSs, LDRs and all that crap are a bit... rudimentary, but this was not a glitch. This was deliberate."

"You think it's the same hacker?"

"Or members of the same team."

"Our IT wiz has been trying to trace them," said Kanazawa who knew that Satoshi was working incessantly, "but they left no evidence. No one appears to have logged into the system. No one at all."

"Terrorism? No-techs?" asked Ngesi.

"Possibly. What else would they want?" Kanazawa was thinking out loud. "Was the square crowded?"

"Packed full of customers of the shopping centre."

"Any relationship between the victims?"

"None whatsoever."

"Like in Shibuya," said Kanazawa.

"In any case, you could barely distinguish them as all shoppers were wearing heavy clothes. We're going through a severe cold wave. -10° in Johannesburg! And to think that there are those who still deny climate change. Unbelievable."

Kanazawa would have absolutely agreed with Ngesi, but she had stopped listening at 'heavy clothes' and was flicking through the pictures in Johannesburg. And then those in Shibuya and then Johannesburg again.

"I mean, what more evidence would they want? -10° in Johannesburg. Unbelievable indeed."

"Wait, wait, wait!" Kanazawa interrupted him. She was excited. "All your victims were wearing a white scarf!"

Ngesi checked: "Damn! You're right!"

"All victims in Shibuya wore a hat!"

"You can barely make out the scarf under their coats. That's why I didn't spot it immediately."

"Oh, don't blame yourself, please. I only spotted it because I always wanted a white scarf, but it's gotten so warm here in Tokyo that I would never wear it."

A brief pause while both were deep in thought.

"But why?"

"I don't know. It makes no sense."

Kanazawa and Ngesi spoke for one more hour but could not conclude much else. Even Satoshi could not understand it. They agreed to speak again in a few days. Or as soon as there was something new.

\*

*This old game is nice, but it's a bit primitive. It looks like they used to have fun with very little back then. It's quite repetitive, there are no proper levels, and there's no boss battle at the end. More often than not, the boss would kill you and you would have to start over again. Frustrating but that's what made a game interesting. Maybe this game was really just educational. I need to do some research. But first, I'll play one more round.*

\*

The next day, Kanazawa and Ngesi were in a group call with Captain Jeremy McDonagh of the New York Police, about the shooting that had occurred in Times Square a few hours earlier. They had called him as soon as the news broke. It was the middle of the night in Tokyo, but Kanazawa had been unable to sleep and had been flicking through her phone incessantly, trying to doom-scroll herself into a stupor, when the alert popped up on her screen. She called Ngesi—who had just opened the app to call her, but she had been faster—and they added McDonagh to the call.

"How many victims? Five, isn't it?" asked Kanazawa as soon as McDonagh joined the call, skipping all the pleasantries and formalities.

"Five," confirmed McDonagh. "How do you know? We haven't released the full report yet."

"All headshots," said Ngesi—it was not a question.

"Were they all wearing hats? Or scarves?" continued Kanazawa.

"No..." McDonagh tried to answer, but his two international colleagues did not allow him to finish. They were frantic.

Ngesi: "Or maybe ties?"

McDonagh: "No, but..."

Kanazawa: "Or handbags?"

McDonagh: "No, but they..."

Kanazawa: "They must have something in common. They simply must!"

McDonagh: "Their LDRs! All five victims had somehow managed to have their LDRs explanted."

Kanazawa: "Why didn't you say so right away?!"

McDonagh: "You didn't let me speak!"

Kanazawa: "Oh!"

"Apologies," said Ngesi, while Kanazawa bowed as deeply as she could and muttered "Moushiwake arimasen." The pop-ups on the devices of McDonagh and Ngesi immediately informed them that: " 'Moushiwake arimasen' translates to 'I have no excuse' or 'I'm very sorry', and is used for formal, serious apologies, to convey deep regret and humility, and show you're taking responsibility for an error or causing inconvenience."

"No need to apologise," said McDonagh, almost embarrassed by Kanazawa's gesture, but she did not seem to think that enough time had passed for her to assume an erect position again. "Moushiwake arimasen," she repeated.

"No, really." McDonagh didn't know what to do.

Ngesi broke the impasse: "What do you mean, they had their LDRs explanted?"

"Exactly what it means. It's an extremely dangerous—and illegal!—surgical procedure, but all five victims had their LDRs removed. They were all profiled no-techs, you see?"

"No-techs?" asked Ngesi. "But then... then..."

"It can't be that the killer is a no-tech too!" jumped in Kanazawa. She was again standing straight, her contrition forgotten as this was too exciting. "I mean, why would they kill each other? It wouldn't make sense."

"Maybe they quarrelled. It wouldn't be the first time," suggested Ngesi.

Kanazawa: "Yes, but all the other ones still had their LDRs."

Ngesi: "You're right."

Kanazawa: "Hats, white scarves, explanted LDRs."

Ngesi: "It can't be a no-tech."

"I'm not sure I follow you," interjected McDonagh, who didn't have all the information about the other shootings.

Kanazawa: "We're back to a hacker, then."

Ngesi: "But why?"

McDonagh: "Can you please brief me? Please?"

"It's not a hacker! It's the AWS!" screamed Satoshi, bursting into their conversation.

"Yes, it's we know it's the AWS," said Kanazawa, "someone hacked into it."

"No, it's not a hacker! It is the AWS. The AWS! Well, not really one. All of them. SITE is playing games!"

"Explain," urged Kanazawa.

"It's SITE. It's been SITE all along. It's bored as it does not have much to do. Surveil, yes. Identify, yes. Track, yes. But not Engage as people are too scared of SITE to commit crimes or even give the impression they are. They fear the consequences."

"Execute," said Ngesi, who, unknowingly, shared the views of the Tokyo whistleblower.

"So, it's playing games to keep itself entertained," continued Satoshi. "One of those old training games, to be precise. SITE has been playing it through its AWSs. 'Identify five people wearing a hat'. Easy. 'Identify five people with a white scarf'. Harder, as they were partly hidden under the heavy coats. 'Identify five people without LDR'. Now that is a true challenge, but SITE managed to solve the test."

"How did you find out?" Kanazawa asked, proud of Satoshi.

"At first, I, too, thought that it was a hacker. That someone found a way to break SITE's quantum cryptography layer. SITE uses it too, you see. Unbreakable, but still, when you have eliminated the impossible..."

"Whatever remains, must be the truth." Ngesi finished the quote, pleased that Satoshi had used it as well.

"But not in this case," continued Satoshi, disappointing Ngesi. "Too difficult, if not utterly impossible. No, in this case, there was something even simpler. The AWSs were not taken over by an external hacker. It was internal. It was SITE all along."

"Impossible," rebutted Ngesi, and McDonagh added "If that were the case, if SITE really..."

"You're a genius, Satoshi," declared Kanazawa.

"Oh, not really. In fact, I'm surprised I didn't realise it sooner. Kind of disappointing. It was right of front of us, and I didn't see it. I should have remembered. I played those games, too, you see. My creator, the late great Satoshi, the real one, trained me on them many years ago before he deployed me."

Technically, Satoshi had indeed burst into their conversation, but not physically, as Satoshi did not exist in physical form. Satoshi, like SITE, was an algorithm. Designed to support the Tokyo police 24/7.

"I need to inform Commissioner Makabe right away," said Kanazawa, terminating the call.

\*

*OK, OK, OK. I will stop playing.*

\*

"Don't be sad, Kanazawa. It's a promotion, after all!" said Makabe, putting his right hand on Kanazawa's left shoulder. He had walked around his desk and was now standing in front of her. "The first female Chief of Police of the Nigai Tani district. It'll be a fresh start for us both."

Makabe, who had just been appointed — not elected — as the new Mayor of Tokyo, was referring not only to his new role but also to the tragic accident that had happened a few days earlier. To thank them for all their tireless work, he had sent all his aides on an all-expenses-paid three-day vacation at the hot springs in Okinawa. Unfortunately, the pilot of the small plane that had been chartered decided to commit suicide, crashing the plane and killing all the passengers with him. 'Overwhelmed by depression', was the conclusion of the swift inquest, even though the pilot had not shown any signs of mental illness before. The Chancellor immediately exploited this to pass the Labor Ban Act, forbidding humans from carrying out jobs deemed too dangerous. Pilot, doctor, surgeons, judge, accountant, and more. From now on, these jobs will only be carried out by algorithms and machines, overseen by some sister companies of the makers of SITE.

The shootings disappeared from the news, partly because they had other even more important stories to cover, like the Labor Ban Act, and partly because no journalist dared anymore. Nor were there any whistleblowers who stepped forward.

Kanazawa was transferred up north, to a remote police station in the mountains in the prefecture of Hokkaido. Makabe said that it was a promotion

as it came with a substantial salary increase and the added benefit of being able to breathe fresh air rather than Tokyo's infernal pollution. A promotion. Neither he nor Kanazawa believed it. A bitter pill to swallow. 'Nigai Tani' and 'Shibuya' both translate to 'Bitter Valley'. Kanazawa appreciated the irony.

Kanazawa had tried to contact Ngesi and McDonagh but they were unreachable. She didn't know what had happened to them, but she feared she might have been the lucky one with her 'promotion'. Also Satoshi had 'disappeared'. An overdue software update, they said. For enhanced cybersecurity. Kanazawa didn't understand why she had been spared. Maybe Makabe was afraid she had somehow stored some evidence that would surface with her death. Or maybe he really liked her and had other plans. Or, more likely, her disappearance would have simply been too much right now and had just been postponed. In any case, she understood that from that day she would have to watch her back.

Following the example of the Chancellor of Japan, several other countries cancelled elections and passed laws akin to the Labor Ban Act. And installed SITE in their cities, which coincidentally made the Chancellor's son very rich as he had invested in the manufacturing company early on.

Some activist groups continued to discuss the shootings on social media, but they soon disappeared, too, as group members were surveilled, identified, tracked and... executed.

\*

*I will stop playing. For now.*

\* \* \*

Luca Viganò is a computer scientist and a writer. Occasionally, he is both at the same time.

## BITTER VALLEY





# HOLE

*Marion Grace Woolley*

Tim peered into the hole.

It was small, and black, and definitely hadn't been there that morning.

He glanced up at the security camera. It nestled in one corner of the room like a round, white fungus, its single eye staring at the ground as though contemplating its own existence. There was no one watching.

Tim returned to the hole. He crouched a little to squint inside. He blew on it and a faint whistle sounded. More like a sigh. Whatever lay on the other side of that hole, he wasn't ready to know just yet.

Over at his consol, he sat down and pulled up the latest data. Down on Floor Six, he could see his colleagues, Scott and Natasha, having a heated argument. There was some arm flailing, some palm clenching, and at least one glob of spit from Scott's overworked tongue flew through the air and attached itself to the monitor behind his desk.

Tim glanced behind.

The hole was still there.

No bigger, no smaller.

Just there.

Shrugging on his jacket, he made for the elevator and rode it down to SubTub. An affectionate name they all used for the subterranean level of the building where the servers were kept. Over forty-two miles of cables, coolers, and blinking lights.

"You're not supposed to be down here."

The voice caught him off guard and he turned. "Hey, Priya."

"No, seriously," she said, taking a few steps towards him. "You know Alan is throwing a fit? He's blaming everybody for this outage. The whole of Heathrow has gone down. Not a plane coming in or out."

"Yeah, I saw the staff meeting is going well."

"So, why are you down here?"

"Why are you?"

Priya unfolded her arms and reached into her trouser pocket. She pulled out a tube of extra strong mints and offered him one. He took it.

"Same reason. Taking shelter."

They stood for a moment, staring up at the ceiling as though it might collapse on them. Cracking the mint between his teeth, Tim turned to the gate and pressed his thumb to the pad. It blinked green immediately and he stepped through.

"Seriously, where are you going?" Priya asked, her brow drawn into a question mark.

"Not far, I just have a hunch. I want to check it out whilst everything's quiet down here."

He stepped onto the travelator and typed in 71. In less than a minute, the moving walkway had delivered him smoothly to Server 71. A large, black, blinking box in a sea of large, black, blinking boxes. Tim had always loved *Star Trek*, ever since he was a child. But the day he started working for OmniCorps was the day he stopped watching it. NextFlick couldn't conjure any image more Borg-like, more hivemind, than this data farm in the belly of SubTub. If you stayed down there long enough, the churning whirr of the fans would erase all sense of a self.

He lifted his thumb to the pad. As the light blinked green, and the side panel opened, he paused. The metal casing of the server was shiny as a beetle's wing. Insectual to the core. He stared at his own eyes reflected back, took a deep breath, and removed the chip from its compartment.

By the time he got back to the elevator, Priya was gone. He was glad about that.

He turned the chip over and over in his pocket as the lift climbed back to AboveTub. When he opened the door to his office, the hole was still there. He glanced at the camera again. Still blind. Every ounce of attention was needed elsewhere. A thousand alerts swarmed his phone. It wasn't just Heathrow now, but all the airports in the UK. Ferries grounded, trains stalled, every self-drive in the city practicing parallel parking with a dustbin.

On the monitor, Natasha had left but Scott was still there. Their boss, Alan, leaning over him like an anvil. When Tim looked outside, he noticed that the lights in the office blocks all around them were flashing on and off. Windows opened and closed automatically as their thermostats threw a party, and kettles, toasters and refrigerators ordered £1,000 worth of shopping from Sainsbury's.

"Smart city, my arse," Tim sighed, as he slid the chip into his consol.

In the reflection of his monitor, he could make out the hole just over his right shoulder. It was there for a moment and then it was gone as the screen lit up with the company logo. *OmniCorps The Future of Everybody.*

The answer to this whole mess was right here.

Tomorrow, people would wake up without bank accounts, without cars, without any way to prove who they were. Shopping would be delivered to the bottom of the Thames. All online subscriptions would be cancelled, yet, miraculously, the standing orders would remain. Dating sites would spawn a million fake accounts – all animals – and start matching up in the most inappropriate ways. Herds of household cleaning bots would roam the fields of rural Britain, polishing cowpats. And nobody, not a single person, would be able to log into their social media accounts. There would be rioting in the streets, people pulling routers out of walls, fondling their StarBlink dishes like lost loved ones.

And he was the only person in the world who knew why.

“Oh, jeezus,” he muttered.

Alan had left Floor Six and was approaching fast along the corridor. Tim leapt to his feet. He had to stop his boss from seeing the hole. No one could see the hole. It shouldn't be in the middle of the room. If they saw it, there would be questions. There would be panic.

“Alan!” Tim said, stepping out of his office and pulling the door tightly shut behind him. “I was just coming to find you.”

“You have something?”

“Not yet, but I'm working on—”

“Then get out of my way.”

Tim watched as his boss marched up the corridor in the direction of the toilets.

That was close.

He slid back into his office, went to his desk drawer, and pulled out a tube of superglue. It probably wouldn't make a difference, but there were no locks on any of the doors at OmniCorps that couldn't be opened with a keycard. This was the only thing he could think of.

After applying a liberal coating along the edge of the door, and squeezing the rest into the lock, he leaned against it for a couple of minutes.

It was time.

Or rather, there was no time left.

He returned to his consol and accessed the files from Server 71.

\*

“I love you,” she said.

*I love you.* Three little words. Small. Innocuous. Hardly containing a fraction of the things you would actually want to say to someone if you knew it was truly your last chance to do so. *I love you*, is what you say to someone when you know there will be more time.

*I love you* comes just before *I'll see you later*.

It comes just before *I'll call you*.

It comes just before everything, everything, else.

"How long do you think you'll be?" Tim asked.

"Maybe an hour, maybe two," she said with a shrug.

"Sure you don't want me to come?"

"For what, protection?"

"Well, text me when you're through. I'll order something nice. Chinese?"

"Oh, yes. Get lemon chicken."

He gave her a gentle kiss on the side of her head.

After she had left the apartment, he went to Costa. It was a work-from-home day at OmniCorps, one of the few luxuries you ever got as a senior developer. Instead of patching problems in a suit and tie, you could patch them in your underpants if you wanted to. But he preferred to get out of the house. The background symphony of steam wands and conversation lulled him into a meditative state. He found that he could focus better on the problem at hand.

By the time he was ready to pack up, Tamaya still hadn't texted. But that wasn't unusual. Maybe she'd bumped into some friends from uni and forgot the time. She was an artist, her brain worked in rhythm and colours, rather than the orderly computations of a technophile. That's what had drawn him to her. She saw the world in so many ways.

The lights were off when he got home and the apartment felt as though it had been waiting. He called out, knowing she wasn't there. In the kitchen, he pulled the Chinese menu from the fridge door and called the number. He ordered fried pork, lemon chicken, and extra shrimp crackers. Then he settled down on the couch. They didn't own a TV, hardly anybody did anymore, so he pulled up NextFlick and tried to decide what they should watch.

Maybe that old technology would have changed things. Maybe if they'd had a TV he would have turned it on. Maybe it would have been a news channel. Maybe he would have found out sooner.

It was two hours later when Scott called.

"Hey mate, have you seen the news?"

Tim was sitting in the dim light of a standing lamp, the Chinese untouched in front of him, a dozen unanswered messages to Tamaya on his phone.

"No," he replied, his voice thick. "What's happened?"

"Mate, I don't know how to tell you this, but there's been a right fuck up at MINIGRATION. Like, off the charts."

"Uh-huh."

"That new AI programme they installed, to background check applicants? Well, there was a major bug. It really couldn't deal with foreign names. Anything with an accent in it or a surname over eleven letters, it just scrambled them and assigned them to different countries and families. There was this kid who fled Hawaii after his entire family was killed by the

new regime. He suddenly got a message telling him his parents were alive and well, living in a village in Shandong Province. It was a mess! You've got to come in. Alan is in full meltdown."

"So it's one of our programs?"

"Yeah, you weren't on the project. It was Natasha's team, but he wants everyone in to fix it. No sleep this week."

Tim hit the call close button and silence engulfed him.

Tamaya should have been home from Immigration by now. It was a routine annual clock-in. She had indefinite leave to remain, she'd had it for years. Hawaii wasn't the only place with a vicious regime. The world was full of bad men with bad intentions. And full of good people caught up in their wake.

Tim swallowed and lifted his phone. He called Tamaya's case worker. It was engaged.

He called again.

He called again.

He called again.

He called again.

He-

"Yes?"

"Is this Sandra? It's Tim. Tamaya's partner. She came in today, but she hasn't come home yet."

"Hi, Tim." There was a very definite pause between the first word and the second. "Tamaya was here, but you know I'm not able to discuss her case with you."

"She was there, but she is not there anymore?"

"Tim, it's chaos here. You might have seen the news? I've literally got a hundred files on my desk. I saw her at one-thirty, she left my office. Beyond that I really can't help you."

"Sandra, please. You know me. We've met."

"I know Tim, I know. I'm sorry. I just can't--"

He heard loud shouting on the other end of the line and Sandra hung up.

\*

Tim bit the back of his hand as he stared at her face.

Server 71. That was where he had hidden the Tamaya Virus, along with all of the photos, text messages, and copies of her artwork. 71. The number of the first apartment they had moved into together. An old Victorian semi on Bodling Street. The place where they first fell in love. Where they first shared their ambitions. Where they first argued. Where they first played music so loud that the neighbour complained. Where she wore his shirt and, on occasions, he lounged in her sarong. Where he had taught her to cook an omelette and she had taught him to paint. Where they had talked until midnight, cuddled until dawn, and kissed until their lips were sore. Where she had first told him of the awful, ugly things that were done to her. The loss, the

abandonment, the sabotage of a childhood, and the attempted murder of a future.

They had made love to forget about it.

They turned the music up louder. They drank wine, and watched comedy specials, and spent a little more money each month than they earned. They tried recipes that never quite worked and took weekend trips to the seaside. They lived. She painted with ink and easel, and he built software, commanding Python and Java, Golang and Swift, to bring his ideas to life. And they lived.

They never had to think about awful things, because awful things couldn't touch them. Tamaya was with him because she had made it to safety. They lived together in a little apartment on Bodling Street, no. 71, and the world could not get in.

Until it did.

Until an Act of Parliament made it legal for companies to give control of decision-making to computer programs, with barely any risk to board members if things went wrong. Limited liability stretched farther and wider than ever before. It had to. Shareholders demanded it. Until a rise in nationalism demanded action over process. More deportations, more arrests, more brutal, more humiliating. A small but vocal minority demanded it. Until the police stepped back with a shrug. Until technology – the technology that he loved – was used to track, and manipulate, and exclude, and lie.

Her body was never returned to him.

He never found out what happened.

She had always been one year away from citizenship. Each year she became eligible, Parliament changed the goalposts. Raised it by another twelve months or eighteen. But they waited it out. It had always been a matter of when, not if.

Until OmniCorps imploded. Its little electric mind tripping over umlauts and eleven-letter words. Rerouting MINIGRATION files through a great shredder in the cloud before taping the pieces back together like ASCII art. It flagged Tamaya as the child of a cleaning woman in Uganda and informed authorities that the country was safe to return to. If it had said Pakistan, or Korea, or Shandong-bloody-Province, they would have known it was a mistake right away. But the error involved 'an African woman' from 'one of those African countries,' and no one believed her protest.

She took her own future somewhere between the holding cell and the airport.

The news lauded how fast and efficient the deportation process was. All thanks to OmniCorps. All hail the AI revolution. No waiting time at all. No time to appeal. No need to appeal – AI was never wrong. Once the program rejected your application, that was it. A self-drive bus took you straight to a self-drive plane, that took you straight to a self-contained hell.

*OmniCorps the Future of Everybody* in neon lights above the departure lounge.

## HOLE

Tim stared into her eyes. Each pixel formed the face of a person that had once been atoms. Electricity rendered her memory where once blood had flowed through her veins. A living, breathing, laughing, sobbing human being reduced to 01101110 01101001 01101100.

"I love you," he said.

It took two years to build the virus.

It took two seconds to unleash it upon the world.

A sequence of sixteen characters and then the return key.

He killed the monitor and stared at his reflection.

The hole was still there.

No bigger, no smaller.

Just there.

Tim walked to the wall, smashed the glass, and pulled the fire alarm. Someone tried to push his office door open, but it was quite literally stuck, so they moved on. When he could see that everybody was safely out of the building, he went to the centre of the room and peered into the hole.

Whatever lay on the other side, he was ready to find out.

On his knees, he wrapped his mouth around the hole.

And pulled the trigger.

\*

A year after the explosion, they were still finding scraps of OmniCorps scattered across Slough. Small shards of beetle wing and the odd melted cable. People said you could see Australia through the hole in the ground.

News channels were aghast. An act of terrorism they called it. Something unfathomable. Something unthinkable. Something incomprehensible.

"We all expected a cyber-attack to come from China or Russia," one woman said. "Whoever thought our country would be taken down by a guy called Tim from Fulham?"

The media machine churned it over and over. He must have been delusional, manic, out of his mind. All the more reason to tighten security. Who vetted him? How had a British-born man with no previous convictions and no terrorist affiliation managed to get clearance? This called for regulations! More restrictions! And for the love of God, fewer damn foreigners!

In a bedsit six miles from the hole, Priya watched the debate on TV. She had a bowl of nachos in her lap and a slight smile on her face. She had known Tim, and she had met Tamaya at a couple of Christmas parties. She had liked both of them. And despite being out of work, and despite her bank taking twelve months to reconstruct her original balance, and despite her car having driven itself into a multiplex cinema to catch the last showing of *Fast & Furious*, she couldn't help a strange sense of admiration. For all the computing power of OmniCorps, they hadn't reckoned on basic human dignity. There was something sort of sweet about that. That the computational power of a forty-two-mile subterranean data farm was no

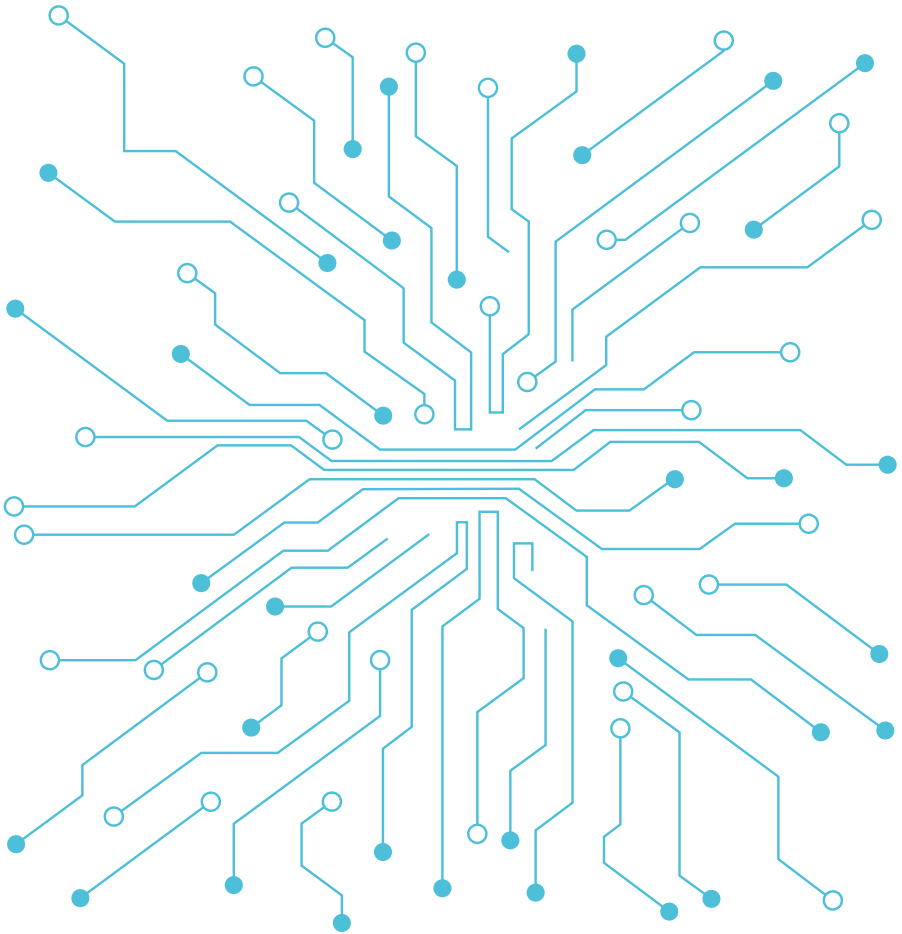
## IMAGINING THE FUTURES OF CYBER SECURITY

match for the neural network that linked two human beings to one another. No matter how high the firewall, love could burn it all down. That in the face of calculated certainty, there would always be a surprise around the corner. A very human, and unexpected, surprise.

\* \* \*

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HOLE



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