

Script for “Real Fake”

Front cover

Resilience Series: Real Fake

Image: Hooded figure against red cityscape

Commissioned by the Cybersecurity and Infrastructure Security Agency
Written by Clint Watts and Farid Haque

Inside front cover

Blue page with no writing or illustration

Disclaimer

Image: Cybersecurity and Infrastructure Security Agency (CISA) seal

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Page 1

Establishing shot - City of Los Angeles

Parallel stories unfold.

(left-hand side)

Exterior (left): eSports Champions Stadium

Interior (left): Inside the club.

We see a group of gaming tournament players sitting facing away from each other.

Front and center is Rachel O'Sullivan

(Image of her playing a League of Legends-style game. Close-ups of her face, eyes, and her hand on the mouse as she clicks and types furiously. Her character is killed, and we get a close-up of the kill screen.)

Rachel: Dangit! (She clicks her mouse furiously.)

(right-hand side)

(In parallel on the other side of LA)

Exterior (right): Voter Advocacy Group Office

Interior (right): Voter Advocacy Group Office

Andre is sitting and looking at his cell phone intently.

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(left-hand side)

Interior: Inside the club.

We see a group of gaming tournament players sitting facing away from each other. Front and center is Rachel O'Sullivan

Her teammate Ben spins in his seat. His expression makes it clear that this is not common behavior for Rachel.

Ben: Whoa! Watch it! I know you don't have another \$200 for a gaming mouse.

Rachel glances down at the mouse in her hand, lets out a deep sigh, and puts it down.

Ben: Are you okay?

Rachel: Sorry, I didn't mean to slam it down so hard! (pauses) ...Yeah, no, I don't know.

Ben: What's going on with you lately? You've been on edge a lot and it's affecting your game.

Rachel: I know it's silly, but this troll on CommBlogz has gotten under my skin.

Ben: Troll? What kind of troll? Is he trashing our team?

Rachel: No, it's political.

The third teammate, Carson, joins the conversation (but he never turns away from his monitor and engages while he continues to play).

Carson: Here we go with the politics again. That's all just a distraction. Focus on what's important: WINNING!

Rachel: You will never get it. Politics is important to me--

Carson: Rachel, I don't think I am in the mood for a lecture right now...

(right-hand side)

Andre Jackson is on his phone at a desk. He seems hyper focused on what he is doing.

Close up of his phone. He is on the CommBlogz App hastily exchanging barbs with someone with the handle Single0. They are arguing about the content of Single0's post and how it contains a fabricated video.

Andre (CommBlogz): Take this garbage off the web and stop trying to pass off this stuff as real. The American people are smart enough to spot a fake!

Single0 (CommBlogz): The truth hurts, doesn't it?

Andre (CommBlogz): This is damaging to our very democracy! People need to be able to trust facts!

Single0: The Deep State hides the truth!

Andre (aside): This guy is clearly a troll. I don't know why I bother to reply.

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(left-hand side)

Rachel: Just listen, for once! This guy, Single0, posted all these clearly manipulated videos on CommBlogz. People watch them and believe they're real.

Carson turns and gives Ben an exasperated look - eyeroll.

Rachel: That gets shared and then people don't have the facts! That's dangerous. Ben: This means a lot to you, I know, but—

Rachel: (interrupting him) Check this out! I dug into his profile and it's connected to some kid's account in Korea! Do you realize what that means?

Ben: Perhaps you have too much time on your hands?

Carson: Shouldn't you be practicing instead of messing around on CommBlogz? Rachel sighs and turns back to her keyboard.

Rachel: Never mind...

(right-hand side)

Interior: The Center

Andre stands from his seat at the desk, shuts off his phone, and lays it on the desk.

He glances at a newspaper nearby. Its headlines reflect the times (Deepfake Technology Gets an Upgrade, President Addresses the Nation).

Andre (aside): Oh man... this is really going to send the media into a frenzy! While our news does the right thing by talking about these "Synthetic videos" the real issue is that they are so feeding the "Liar's dividend."*

*Liar's dividend is the unintended outcome of shining a light on disinformation, which in turn causes doubt around the veracity of news (True or not), inadvertently helping those that spread lies.

He walks to the window and glances out at the people walking by. Andre looks away in frustration.

Page 4

Exterior: On the street.

Rachel's car is driving past. Billie Eilish song "Bad Guy" is playing on the radio. "Creepin' around like no one knows, Think you're so criminal..."

Rachel parks, walks to her apartment and gets her key out.

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She enters her apartment, and her dog Chewie greets her with a bark.

Rachel: What a day!

Chewie (dog): Woof!

Rachel: Hi, Chewie... That's a good boy... Miss me? (Rubbing the dog's chest)

Page 6

Rachel (mutters): OK... time to get Mr. Chairman on the line...

Laptop lies on a nearby desk. She presses a key on the keyboard and the screen wakes up. It's still on the CommBlogz website.

She takes out her phone as she sees an incoming call from an "Andrew Wilson."

Page 7

Rachel answers the call and an older man's face appears on the phone.

Rachel: Could I get a 30-minute appointment with the Chairman, right now?

Andrew: It's a bit short notice! But I am sure he could squeeze you in considering you're his favorite niece!

Rachel: Thank you! I wanted to get your take on this. More of these deepfake videos are showing up on CommBlogz and finding their way to other social media sites. Got into it with a troll there yesterday. It seems to be getting worse!

Andrew: First off, you shouldn't argue with trolls. How many times have I told you that?

Rachel: Yeah, but--

Andrew: (Interrupting) SECOND, you are correct. The tech behind these altered videos is getting more advanced and the hardware cheaper. DEEPFAKES used to be the purview of a few. Did you ever see that DeepFake my alma mater made for Nixon's alternative moon landing video? It's an instant classic...

Nowadays thanks to the low cost of GPUS, just about anyone has the processing power to make DEEPFAKES... or, as we call these low-budget versions, CHEAP FAKES.

*GPUS is the acronym used to describe graphics processing units which are specialized, electronic circuits designed to rapidly manipulate and alter memory for a hardware device to accelerate the creation of images. They are often used to improve performance for personal computers, workstations, and game consoles (as well as other devices) that need to deal with large image-related data.

Rachel: This is scary, especially in an election year! All this is being done to undermine our democracy. This has Moscow written all over it!

Andrew: Maybe it's time we dug deeper. I can tell you a little more about DeepFake technology before I have to go.

Pages 8 & 9

A brief history of deepfakes.

THE TERM “DEEPPFAKE,” A COMBINATION OF “DEEP LEARNING” AND “FAKE” IS USED TO DESCRIBE SYNTHETIC VIDEO OR AUDIO CONTENT, WHICH IS OFTEN CREATED WITH MALICIOUS INTENT TO SPREAD MIS AND / OR DISINFORMATION. THE TERM WAS FIRST USED BY A REDDIT USER IN 2017.

THE FIRST DEEPPFAKES THAT GAINED NOTORIETY WERE MOSTLY FOCUSED ON NON-CONSENSUAL PORNOGRAPHY, CREATING SYNTHETIC MEDIA, OFTEN USING CELEBRITIES AS SUBJECTS, TO GARNER WIDESPREAD SHARING. IN MANY CASES THE SYNTHETIC MEDIA HAS BEEN USED AS A WAY TO SHAME, HUMILIATE, AND MANIPULATE VICTIMS AROUND THE WORLD. TECHNIQUES HAVE RANGED FROM FACE-SWAPPING TECHNOLOGY TO MUCH MORE COMPLEX APPLICATIONS.

THE TECHNOLOGY IS REPORTED TO HAVE EMERGED INITIALLY FROM ACADEMIC RESEARCH AT THE UNIVERSITY OF CALIFORNIA - BERKELEY AND WAS REFINED BY COMPUTER VISION EXPERTS IN SILICON VALLEY. THE MAJOR BREAKTHROUGH IS ATTRIBUTED TO A PAPER PUBLISHED BY A TEAM AT BERKELEY TITLED “[Video Rewrite: Driving Visual Speech with Audio](#).” IN THIS PAPER, THE TEAM FOCUSED ON THE IMPORTANCE OF SYNCING LIP MOVEMENTS AND SPEECH AT A TIME WHEN MUCH OF APPLIED ARTIFICIAL INTELLIGENCE IN THE SPACE OF MACHINE LEARNING WAS LARGELY THEORETICAL.

DEEPPFAKES HAVE COME BY WAY OF NOT ONLY VIDEO BUT AUDIO TOO. THE ABILITY TO USE READILY AVAILABLE AND AFFORDABLE SOFTWARE TO CREATE FAKE SOUND OR VIDEO HAS BECOME AVAILABLE TO THE MASSES AS THE COST OF GRAPHICAL PROCESSING UNITS HAS FALLEN AND THE NECESSARY PROCESSING POWER TO MAKE A DEEPPFAKE, WHICH WAS ONCE OUT OF REACH, HAS BECOME MORE ACCESSIBLE.

ACADEMICS HAVE ALSO BEEN HARD AT WORK SHOWCASING THE EXTENT TO WHICH DEEPPFAKES CAN BE USED TO INFLUENCE MAINSTREAM MEDIA. MIT PRODUCED A VIDEO OF PRESIDENT RICHARD NIXON WHERE THEY PLAYED OUT AN ALTERNATIVE MOON LANDING STORY. THAT DEEPPFAKE WAS USING A PRESIDENT OF YESTERDAY... FAST FORWARD TO AN ELECTION YEAR AND IMAGINE HOW VIDEO ALTERATION SOFTWARE CAN MANUFACTURE VIDEOS OF A PRESIDENTIAL CANDIDATE WITH DEVASTATING IMPACTS ON THE CONFIDENCE OF VOTERS IN THE INFORMATION THEY INGEST.

Pages 10 & 11

IN MARCH 2019, THE CEO OF A UK-BASED ENERGY FIRM WAS ASKED OVER A CALL, BY SOMEONE HE THEN THOUGHT TO BE THE HEAD OF HIS GERMAN PARENT COMPANY, TO TRANSFER 20,000 EUROS TO A HUNGARIAN SUPPLIER.

NEWS REPORTS LATER DETAILED THAT THE CEO HAD BEEN CONVINCED THAT IT WAS THE HEAD OF THE PARENT COMPANY ON THE BASIS OF A GERMAN ACCENT AND HIS RECOLLECTION OF HIS BOSS' VOICE AND MADE THE TRANSFER ALL WITHIN AN HOUR'S TIME. REPORTEDLY, THE SAME SOURCE TRIED TO REQUEST ADDITIONAL FUNDS TO BE TRANSFERRED BUT BY THEN THE UK CEO HAD GROWN SUSPICIOUS AND DID NOT AUTHORIZE ANY ADDITIONAL TRANSFERS.

ACCORDING TO THE COMPANY'S INSURANCE COMPANY, FRAUDSTERS HAD LEVERAGED DEEPPAKE TECHNOLOGY AND ARTIFICIAL INTELLIGENCE TO CONSTRUCT A LIFE-LIKE RECORDING OF THE GERMAN GROUP HEAD'S VOICE. THE MONEY WAS SYPHONED OFF TO MEXICO AND CHANNELED TO OTHER ACCOUNTS.

THE FINANCIAL, POLITICAL, AND SOCIAL THREAT POSED BY DEEPPAKES, (AND TODAY CHEAP FAKES), IS A VERY REAL RISK ABOUT WHICH SOCIETY AT LARGE NEEDS TO DEVELOP AWARENESS AND RESILIENCE.

Pages 12 & 13

ONE TECHNIQUE FOR THE CREATION OF A DEEPPAKE VIDEO INVOLVES SWAPPING A PERSON'S FACE AND REPLACING IT WITH ANOTHER, USING A FACIAL RECOGNITION ALGORITHM AND A DEEP LEARNING COMPUTER NETWORK CALLED A VARIATIONAL AUTO-ENCODER (VAE).

VAES ARE TRAINED TO ENCODE IMAGES INTO SIMPLER LOW-DIMENSIONAL REPRESENTATIONS (THINK OF ZOOMING INTO A PICTURE TO SEE THE PIXEL) AND THEN DECODING THOSE REPRESENTATIONS BACK INTO IMAGES. FOR INSTANCE, IF YOU WANTED TO TRANSFORM A VIDEO OF ANYONE SPEAKING, YOU WOULD NEED TWO AUTO-ENCODERS. ONE TRAINED ON IMAGES OF THE SUBJECT'S FACE, AND ONE TRAINED ON IMAGES OF A WIDE RANGE OR DIVERSITY OF FACES.

THE IMAGES OF FACES USED FOR BOTH TRAINING SETS CAN BE CURATED BY APPLYING AN ALGORITHM FOR FACIAL RECOGNITION. THIS ALGORITHM IS ABLE TO CAPTURE VIDEO FRAMES FOR A DIVERSITY OF FACES IN VARIOUS NATURALLY OCCURRING POSES AND LIGHTING CONDITIONS.

TRAINING THE MACHINE IS WHY THE TERM MACHINE LEARNING IS USED TO DESCRIBE THIS PARTICULAR APPLICATION OF ARTIFICIAL INTELLIGENCE. ONCE THE MACHINE HAS LEARNED OR IS 'TRAINED,' IT IS THEN POSSIBLE TO COMBINE THE ENCODER TRAINED ON THE DIVERSE FACES WITH THE DECODER TRAINED ON THE SUBJECT'S FACE. THIS RESULTS IN THE SUBJECT'S FACE BEING ABLE TO BE PLACED ON SOMEONE ELSE'S BODY.

Pages 14 & 15

HOLLYWOOD HAS LEVERAGED DEEPPFAKE TECHNOLOGY WITH GREAT SUCCESS, SUCH AS “GEMINI MAN” WHERE A MULTI-MILLION DOLLAR BUDGET PRODUCES A YOUNGER VERSION OF WILL SMITH THAT BATTLES WITH HIS CONTEMPORARY SELF. SIMILAR DE-AGING EFFECTS CAN BE SEEN IN “THE IRISHMAN” PRODUCED BY NETFLIX IN 2019.

WHILE THESE PRODUCTIONS SPARE NO EXPENSE AT BIG BUDGET DEEPPFAKE WORK, ONE DOES NOT HAVE TO SEARCH TOO LONG ON YOUTUBE TO FIND PLENTY OF EXAMPLES OF CHEAP FAKES. ONE OF THE MOST PROMINENT EXAMPLES USES WILL SMITH’S FACE SUPERIMPOSED ON KEANU REEVES’ FACE IN A SCENE FROM “THE MATRIX.” THIS WAS CREATED BY A YOUTUBER USING FREE SOFTWARE.

THIS IS EXCITING TECHNOLOGY FOR HOLLYWOOD BECAUSE IT ALLOWS FOR POSSIBILITIES LIKE RECREATING HISTORICAL VIDEOS SUCH AS PRESIDENT KENNEDY SPEAKING DURING THE CUBAN MISSILE CRISIS BUT USING AN ALTERNATIVE SCRIPT. MANY STUDIO EXECUTIVES SEE THE TECHNOLOGY AND ITS USE BECOMING MORE PERVASIVE IN THE COMING YEARS.

DISNEY RELEASED A SIGNIFICANT [PAPER](#) IN 2020 WHICH DETAILS A NEW ALGORITHM THAT IS ABLE TO ACHIEVE SIGNIFICANTLY BETTER QUALITY SYNTHETIC VIDEO OUTPUTS FOR HIGH RESOLUTION VIDEOS. WITH THE DAWN OF HIGHER RESOLUTION TELEVISION SETS, THIS WILL BECOME EVEN MORE IMPORTANT AS THE MINUTIAE OF FACES IS MORE VISIBLE AND LOW FIDELITY ALTERATIONS MAY NOT PROVIDE FOR AS COMPELLING OF AN ENTERTAINMENT EXPERIENCE.

Pages 16 & 17

ANOTHER EXAMPLE WHERE THE TECHNOLOGY HAS FOUND A HOME, ONCE AGAIN IN THE ENTERTAINMENT INDUSTRY, IS IN GAMING.

GAME STUDIOS ARE CREATING "VOICE-SKINS" FOR USE IN ONLINE GAMES AND SOCIAL PLATFORMS. THE GAMING INDUSTRY IS LARGER THAN THE WORLD OF MOVIES AND BOOKS COMBINED AND THEREFORE THE COMMERCIAL POTENTIAL HERE IS LIKELY TO CONTINUE TO GATHER INTEREST.

THE GROWING INVENTORY OF ARTIFICIAL OR SYNTHETICALLY GENERATED VOICES CAN BE PURCHASED BY GAMING STUDIOS THAT ARE LOOKING TO OFFER A LEVEL OF REALISM IN THEIR GAMEPLAY THAT PREVIOUSLY COULD HAVE ONLY BEEN OFFERED BY REAL VOICE ACTORS.

Pages 18 & 19

WHILE THE NUMBER OF DEEPPFAKE AND CHEAP FAKE VIDEOS CONTINUES TO EXPLODE ON THE INTERNET, A NEW SET OF ORGANIZATIONS HAVE EMERGED TO IDENTIFY, TRACK, AND REPORT ON THESE THREAT VECTORS.

SOME OF THESE COMPANIES EMPLOY LARGE TEAMS THAT ARE SCANNING SOCIAL PLATFORMS AROUND THE WORLD AND IDENTIFYING THE EMERGENCE OF SUCH MEDIA, RECOGNIZING THAT SYNTHETIC CONTENT HAS THE POTENTIAL TO IMPACT ECONOMIES AND PEOPLE AROUND THE WORLD.

IT'S IMPORTANT FOR THE VOTING PUBLIC TO BE PARTICULARLY VIGILANT ABOUT THE CONTENT THEY SEE ON THE INTERNET, AND TO SEEK OUT TRUSTED SOURCES. THE CONSTANT CHURN OF USER-GENERATED CONTENT MIXED WITH PLANTED CHEAP FAKES IS A PARTICULAR AREA OF CONCERN FOR DEMOCRACIES AROUND THE WORLD THAT GRAPPLE WITH THE POTENTIAL INFLUENCE THIS TYPE OF MEDIA COULD HAVE IF VOTERS ARE FACED WITH ELECTION-RELATED DISINFORMATION.

WHILE MANY IN THE MEDIA ARE DOING GREAT WORK TO UNCLOAK AND REPORT ON DISINFORMATION AND EVEN IDENTIFY SPECIFIC DEEPPFAKES, ALL OF THIS TALK ABOUT DISINFORMATION ALSO FEEDS WHAT IS REFERRED TO AS THE 'LIARS DIVIDEND.' THE PUBLIC BECOMES INCREASINGLY HYPERAWARE OF THE ISSUE AROUND THE ORIGIN OF CONTENT THAT THEY MAY EVEN START TO DOUBT THE VERACITY OF LEGITIMATE VIDEOS AND MEDIA ON THE INTERNET.

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Exterior shot: A few months earlier, Moscow, Russia

Interior of Leningradskaya Station

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A hooded figure leaves a subway train and makes his way out of the station, walking toward a large hotel in the neighborhood.

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The figure enters the hotel lobby, travels down a hallway to an elevator. "DING" the elevator arrives. It's quiet otherwise.

Page 23

The hooded figure makes his way to the hotel room.

Interior: SECRET HOTEL SERVER ROOM AND OPERATIONS CENTER

Packed inside the generously sized room are servers, and digital workers are seated beyond in a freezing room. The seats have numbers on them. Single digits: 0. 1.

A close-up of a screen working on face-mapping software is shown.

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Zooming in on a monitor, we see a chat log.

The people in the room are chatting to someone in Russian and the chat is being translated into an Asian script on an encrypted chat program. The substance of the conversation is about deadlines and the nature of what the alterations are meant to accomplish.

The meeting room is interrupted by an announcement by a man who appears to be the team leader.

Team leader: That is the next phase for our deepfake campaign.

We must use the latest algorithm as it has perfected temporal stability for high-resolution videos. This will take us to the next level with how real this will seem to the Americans.

Other team member to left (Russian text): That's cool. Are we the first to do this?

Team leader: We are only the second team in the world to have perfected the algo thanks to the good work of Zero here! We have FULLY automatic neural face swapping in images and videos! And at a megapixel level!

The leadership wants results! Now, if you will excuse me, I need to check on the production myself.

Team leader heads to the Production room / Audio Studio. The Audio Studio is identified by a sign in Russian.

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Interior: Production room

Translated from Russian...

Team leader (Russian text): Hi!

Production deepfake expert: Hey

Team leader: A little bird tells me you have been calling your girlfriend again! You know this is a dark room. What were you thinking?!

Production deepfake expert: I didn't call her... I was checking on my sister!

Team leader: Don't be stupid! We see everything! Just stay off the phone!

Production deepfake expert (Russian text): "Sorry!"

Team leader: We are under pressure to deliver. Where are we with the new campaigns?

Production deepfake expert: The anti-5G campaigns are on time. We pushed three new memes in the last hour and they are getting traction on all platforms! The seeding is being done by the farms.

Team leader: Good. What about the election work? That's far more important right now! Are the farmers ready with the seed?

Production deepfake expert: We are working on a video right now where we have manufactured a story about a prominent senator. It's almost too easy to get these two parties fighting with each other.

Team leader: ...and the more they fight with each other...?

Production deepfake expert: The less they accomplish as a nation.

Team leader: Precisely. With the new algorithm it will be perfect... convincing enough to sow the seeds of doubt. It's incredible how easy it is to inflict doubt. Now, you finish that video. The rest of us will need to put all our focus on the election. Memes. Videos. Falsified news articles. I want to see at least 20 new items out on the boards before the hour is up. It's time to catch up with our European cousins.

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West Africa.

We zoom into the city.

A traffic light turns green.

A scooter taxi zooms forward. Vroooooom!

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The driver zips through the city carrying a young passenger. He gets to his destination.

The scooter motor remains on.

The passenger pulls out his phone and pays for the service. The NuNewz office building is ahead.

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Interior: NuNewz office

Olivia: Please make yourself comfortable. Can I get you something to drink? Water? We are very impressed with your resume.

Nana: I am good for now, thank you.

Nana: Really appreciate the opportunity to interview here.

Olivia: So, tell me a little about your experience with content creation on social media.

Nana: Well...I did some work around the Ebola virus in Africa last year through some freelancing platforms.

Olivia: Very nice. Tell me, could you write something right now for me? In American English?

Nana: I could, yes.

Olivia: Good. I want you to write a piece on "Corruption at the highest levels" in the United States. I want you to think "senators and senior officials."

Nana: Yes, but why would that need a campaign from the U.S.?

Olivia: It's a focus right now in the States. We have an interest in outing injustice. Just let me see what you can do.

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Interior: NuNewz office

30 minutes after a successful interview...

Olivia: Nana, we are really pleased with the way you conducted yourself and the quality of the post you created in such a short time!

You seem to have really good knowledge of what is happening in America! We want you to start immediately! Will you join us?

Nana: Wow! This is a dream come true. Yes. Of course.

Olivia: Please come with me to the next room and we will process your hiring paperwork immediately.

Door opens: CREEEAK....

Cut to the interior of a large warehouse-sized room. There are dozens of people working at cramped stations.

The door opens and Nana enters, being guided by an employee. Nana thinking:
Can't wait to let mama know I got the job!

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Half an hour later, after a debrief with a new manager...

Interior: NuNewz office

They weave their way through the maze of desks.

Supervisor: This is your station. Make sure you show me how many posts and what engagement you get daily in a status report.

Isaac here will show you how to use the reporting system. Our founders like to see daily results.

Isaac, a young African man, smiles weakly at Nana, half raises his hand at being identified and then returns to his work. Nana sits down and looks around the desk.

Isaac: Hah hi...

Cut to a wider view of Nana, now part of this large machine.

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Interior: NuNewz office

Meanwhile, inside the NuNewz co-founders' office overlooking the troll farm.

Cut to a shot of an office overlooking the warehouse. There are two men here, wearing office attire, looking through an observation window at the bustling floor below them.

A phone rings on the table. A close-up of the screen reveals a number from France +33.

Manager (motions to the other): Showtime! Let's talk about today's progress with the boss! We're really starting to fill up the seats down there.

Anonymous boss: You are late on the engagement numbers from yesterday's posts. What happened?

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In another room nearby, a Chinese man in a very expensive suit, Mr. Zhang, is talking to two African men (Mr. Adomako and Mr. Badu) in equally expensive suits.

Adomako: I just want to apologize on behalf of the NuNewz founders. They are both currently indisposed.

Adomako: As the CFO, I will be leading this discussion together with my colleague, Mr. Badu.

Adomako: So, you think you can invest USD \$100,000? That will buy you 10% of our company based on the current and projected valuation.

Zhang: I don't know about that number... I have invested in similar companies in Europe and Asia, but they had been up and running for far longer than three months.

Badu: The figures are fair. You know that we are turning over tens of thousands in profits every month. It's a sure thing.

Zhang: Admittedly, your returns are extraordinary for a startup under 6 months and this would give us a foothold here in Africa, which is so full of opportunity for us. Okay, let's move ahead!

An assistant comes into the room and leads Mr. Zhang out. Assistant: Right this way, sir, and we will start the paperwork for your investment.

They leave. The two founders remain in the room, pause a beat as the door closes, and then fist bump with enormous smiles on their faces.

Adomako: The founders will be really happy with this outcome.

Adomako: And he said that he had other friends who may also want to invest!

Badu: Yes. (With a wry smile) I am just glad he didn't dig too deep into the actual work we do.

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Meanwhile in Western Europe...

(Cut to a Western Europe street scene. In an outdoor area, there is a food truck parked on the edge of the courtyard. The taco truck worker stands waiting to serve the customers.)

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Exterior (food truck)

Worker Man: Two tacos please! (He is served food.)

So great that we have the food truck scene here!

Worker Woman: It almost feels like Austin during South By!

Worker Man (laughing): Well... I wouldn't go that far!

The man and woman get their meals and walk back to the office together. Worker Man: So how are your numbers this week?

Worker Woman: Think I need to boost my posts more...not quite hitting the big time yet! Compared to some of the others who have a million likes! How do they do that?

Worker Man: Don't worry, it's about A/B testing the copy and the creative assets used in the ad, as in compare what works better: Image A or B. Or again Copy A or B. Happy to share some of my top tips. I still top the leaderboard with my anti-5G vaccine post with two million engagements!

Worker Woman: Getting the feeling I should have stayed in the world of big agencies!

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Interior: ICHTECH offices

They reach a door with a sensor reader and swipe their cards. A red light on the sensor turns from red to green.

They enter the office.

The corporate office is gleaming... PING an email arrives...

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Worker Man and Worker Woman settle back into their workstations.

There is a new email on their terminals, and we move to a close-up of the screen. The email is to all employees stating that a new campaign is starting that very afternoon about a “US Senator caught red-handed on a “Video” taking bribes to push for a planning permit for a foreign group.”

Worker Man: Can't believe these people! why would anyone sell their integrity for a few dollars! A manager approaches them.

Manager: Do your homework! Check your sources. Remember to use accounts that show diverse people with followers and history. These are all ready for you.

Find the usernames and passwords in the encrypted emails sent to you and do NOT share it with anyone. Remember we are tasked with making sure that the truth is out there!

Worker Woman: Who did you say we get the videos from?

Manager: A good journalist never reveals his sources. Now, let's get on with getting these videos seeded. The correct hashtags are #SenatorOntheTake #CorruptSenator. The video file of the senator taking the duffle bag of money is on the shared drive. Also, I have a special incentive for you all today! Person with the most retweets or likes today gets a beer on me!
Manager (text): We have begun project Solyanka! Can you confirm if the last payment was sent? I still have not received it.

Text response from unknown number: Money will be in your account by next week. The bank must be holding it. Go speak and report back. I don't want any unnecessary attention.

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Back in Los Angeles, USA

Interior: Rachel's apartment, a long shot of her living room

Rachel (thinking): It's a bit risky to meet up so soon and introduce the idea of Symous, but we don't seem to have much time with the clock on the election ticking!

Rachel is seated in front of her laptop. We see a CommBlogz message chain between Rachel and Andre. They are agreeing to meet in person.

Cut to a closer shot of Rachel's desk where there is a printout of a photo of a younger Andre with another young man whom we have not yet seen in what looks like the common area of a college dorm building. They are sitting on a couch surrounded by empty cola cans and bags of chips and playing a video game console.

The words Andre and Aiden have been marked on the picture.

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Interior: Rachel's apartment

Rachel is at her desk. She is logged into a dating website called "UrCatch.com" and is looking at Andre's profile. Zoom in on specific details like his occupation, location, and education.

Rachel (thinking): Yup! Definitely the same Andre as on CommBlogz. It's amazing, and scary, how much information I can get from this site. No wonder cyberstalking is such a problem. People need to be more careful about how much they put out there...

Cut to the exterior of a coffee shop on a bustling street.

Interior: coffee shop

Rachel: So, Andre. It turns out we have more in common than we thought. Seems we each have a passion for democracy, voter rights, sci-fi and K-9 companions!

Andre: You remember everything from my profile. Impressive! I love dogs... have a cockapoo! You?

Rachel: German shepherd. He's an old police dog. Been with me for 7 years now. Named Chewie... you know after the hairy character in the greatest space story ever told!

Andre: There is no Chewie in "Star Trek."

Rachel: Not "Trek" ... "Wars," dummy, "Wars"!

Andre: Okay, we're not going to agree there on the greatest space sci-fi... Democracy is my real passion! I mean, the democratic process is the only thing holding us together in this country and when it is compromised, that's when we start to lose our liberties!

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Andre (standing up): I mean, all of this is hanging on by a thread. So few people actually realize what is at stake and how many entities want to see it destroyed.

Rachel glances around uncomfortably. She realizes that the people around her are starting to take notice of Andre's outburst.

Rachel: Could we just take it down a notch? She reaches across the table and takes his hand.

Rachel: Hey, I get it, but let's try to keep it a little more low-key.

Andre pauses, looks around and slowly sits down. Andre: Sorry... I didn't mean to get carried away there...

Rachel: It's fine. You're fine. I love your energy and your enthusiasm. How would you like to put it to work making a real difference?

Andre: What do you mean?

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Rachel: I am part of a group that wants to push back against the disinformation campaigns targeting our country. We could really use someone with your knowledge, connections, and attitude.

Andre: What group is that?

Rachel (leaning in): Ever heard of Symous?

Close-up of Andre's startled face. Then a close-up of his eyes, wide with surprise.

Andre: Wow! Um. Wow! That's a lot to digest. (Pauses, takes a sip of coffee and glances around.) I will need some time to think about that...

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Rachel: Also, your old friend Aiden Patel from NICT is already a member. He couldn't stop raving about you! We have resources so I am not looking for any money from you. We have significant backing.

Rachel turns her phone around to reveal Aiden live on video chat.

Aiden: Sorry Andre... didn't mean to sneak this up on you! But this is a legit operation, and we have an opportunity to make a difference.

Andre is, again, visibly stunned.

Andre: What do you need me for? What can I do? I am just a coordinator at a voter advocacy group?

Aiden: No. We are just civic-minded citizens too! Symous is a group of citizens defending the truth and democracy online. If Rachel hasn't told you already, we are in no way, shape or form linked to any government anywhere!

Aiden: You can help us with your vast knowledge of politics and help us make sense of possible impacts of this disinformation. We need people that understand the system so that we can protect it.

Andre: Seriously, what is this? Aiden, are you trying to punk me?! This has to be a joke! This is nuts!

Aiden: This is real Andre. You know what's at stake. Either you are a part of this and help us or stand by and watch our democracy get taken apart post by post.

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Half an hour later...

Andre (reservedly): Alright. I'm in! This better be legit, Aiden.

Rachel: Do you have a valid passport?

Andre: Totally. What's the plan?

Aiden: We are going on a little trip!

Andre: Where are we headed? Canada?

Rachel: Hah! Nice one!

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Aiden: Just a little further than that.

Rachel: I hope you like kartoffelpuffer?

Andre: Huh? Is that some kind of European dance?

Rachel: Food, actually. Potato pancakes to be precise, but good guess. It's a specialty in Europe.

Aiden: See you folks there. I'll be on the 3 p.m. flight out of Logan! I hear you guys will be taking the Gulfstream from LA!

Rachel: Meet me at Van Nuys Airport in four hours. We need to make tracks ASAP. Pack for a couple of days! Let's go, go, go!

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Exterior: Van Nuys Airport, Los Angeles

Establishing shot of a Gulfstream jet on a tarmac.

We see Rachel and Andre boarding it. Andre looks nervous based on his facial expression and body language. Rachel is stoic and confident.

Rachel: Did I mention that we need to swing through West Africa on the way back?

Andre: What!? This is a bit much! Why do we need to go there?

Switch to an interior shot of the jet. Rachel and Andre stow their bags and take seats next to each other.

Rachel: Well, we have a date with some government contacts there.

Andre: Look, if we are doing this, I need to be in the loop on everything that we are doing. I can't keep absorbing all these surprises.

Rachel: That's fair...

There's a lot to cover. I'll fill you in over the course of our flight.

The pilots look back from the cockpit. Pilot: We all strapped in and ready to go?

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Somewhere over U.S. airspace crossing a state border...

Interior: Gulfstream in the air...

Rachel: You okay?

Andre: I am not a good flier. Did I forget to mention that? Soda seems to help.

Andre: Okay, so you are saying that we are pretending to be investors interested in putting money into a social media startup which is a front for a troll farm? (Andre drinks some of the cola, hoping that he would feel less nauseous.)

Rachel: Yes! Glad to see that you are as sharp as ever despite the flight sickness! Got a barf bag ready?

The idea is to get in and understand if the teams there know what they are actually doing and get a feel for who they are communicating with.

Rachel: We suspect the place is being run out of Moscow. And you remember that troll you were so upset about? The one who posted the deepfake? Mr. Zero... One of those people is that troll.

Andre: I thought that guy was from North Korea?!

Rachel: First, it may not be a guy. Take a look at me for instance. Plenty of us are female hackers! Second, it's never as simple as "What You See Is What You Get" in this space.

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Interior: Gulfstream

Andre: Fair enough. So, you're thinking that it's our friends in Moscow?

Rachel: Almost certainly, but they are using a network of troll farms along with more sophisticated deepfake tech than I have ever seen before. Our first stop is courtesy of an old contact at Moscow Technical University.

Cut to a shot of the university.

Rachel (her words appear over the exterior shot of the university): Did you know the guy who came up with the Periodic Table of Elements went to school there?

Andre: I did not. But what does that have to do with our trip? (Andre pours more cola.)

Rachel: My contact there tipped me off on some chatter about the farms we are about to visit.

Page 47

Interior: Gulfstream

Andre (drinking cola): So, what's the deal with where we are going?

Rachel: It's a node in the network. Just one troll farm amongst the many. We know that the posts are being seeded from there, but I need the link to Moscow. Unfortunately, they have gone off-grid on communicating with their handlers.

Andre: So you want to play code breaker?

Rachel: Not quite. This may be a lot more basic than trying to play Turing.* I have a feeling that I need to get my hands on a manager's phone to see who they are calling. It's likely to be a burner, hence the reason why we haven't been able to trace it as of yet. Aiden will pretend to be a competing investor while we are there and distract them while I do what is needed.

The plane shakes due to turbulence, which scares Andre. He shifts violently in his seat.

Andre: Ahhh!

Rachel: Wooooah! Steady there! (laughs)

Cut to another shot of the outside of the plane as it lands at a private airfield outside a European city center.

*Alan Turing is recognized as one of the greatest codebreakers to have ever lived. He helped play an important role in cracking the code Nazis used during WW2.

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Cut to the interior of a conference room. Rachel and Andre are there, dressed very smartly. They are looking at the screen of a laptop at some sort of presentation. There is a man in a suit who taking them through the presentation. He is Mehmet, the founder of the company.

Mehmet: ...so based upon our profitability in the last two quarters, you can see that the opportunities for investment are quite lucrative. You are fortunate to be among the first who are considering it.

Rachel: Impressive, indeed. What do you think?

Andre: I like what I hear...

Mehmet gets a call. It's Aiden pretending to be the other investor. Mehmet: Excuse me, I have to attend to this as it's another potential investor. Mehmet steps outside of the room.

A message from Mehmet's phone 'PINGS' on to the projector that it is connected to and the following message appears: "We need an update on Project Solyanka and the Senator campaign?"

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Rachel and Andre look at each other

Rachel: Well that about does it. That's a smoking gun if we ever needed one. That was almost too easy."

The founder re-enters. Mehmet: Right then...

...So, is there anything else I can tell you?

Rachel: I think we have what we need. Let us think about it some more. It's a lot of money and the valuation is a bit rich for our fund, but we may be able to convince the investment committee given how well you all are doing!

The founder smiles. Mehmet: Well, I certainly hope we can do business together. Thank you for coming!

Mehmet texts: Just had a term sheet from a prospective US investor.

Aiden texts: What's the offer? I can counter.

Mehmet texts: I am happy to consider another offer.

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As Rachel steps out she types a message on her phone: I saw this number pop up on his screen, could you trace it for me? I think this might be what we need. +44 *****

Rachel (thinking): Gotcha! Proof in hand. Finally!

She sends the number over to HQ where the analysis begins.

An hour later, back at the airstrip...

Cut to an establishing shot of Rachel and Andre boarding the plane again. Aiden hugs both of them.

Andre: Bro! It's been ages! Aiden: Yes, it has.

Andre: Glad to see you are still great at getting us both in over our heads.

Rachel takes a bow dramatically. Rachel: Have faith, gentlemen. We have this under control, but it's far from over!

Page 51

Exterior: Private airstrip, outskirts of West African city

Establishing shot of the Gulfstream as it lands. A paramilitary officer meets the visitors on the tarmac once they land.

Officer: Welcome! We have been expecting you!

Rachel: Andrew pulls out all the protocol stops. Did I tell you that he knows the president personally?

Officer: We have a raid party ready and a court-mandated search warrant in hand! Thanks for the tip-off.

We know that a number of international parties have been tracking this troll farm and are keen to speak with the owners of this alleged troll farm.

Rachel: You guys might want to move fast. We hear some chatter about shifting base here. If that happens there is no telling how long it will take for a new lead to surface. You may need to take them tonight!

Pages 52 & 53

The troll farm is taken by the authorities.

The door is broken down. Crash!

Officer: FREEZE. THIS IS THE CENTRAL POLICE AUTHORITY!

Police Officer: Round each and every one of them up. No exceptions!

Nana is arrested and protests: I am innocent! I swear it!

Officer: Save your breath for the police station.

Page 54

The next morning...

Andre: I almost feel bad for them. Do you think they knew what they were doing?

Rachel (scoffing): How could they not? I mean, they were manufacturing propaganda. It's pretty obvious isn't it?

Andre: I'm not so sure. Maybe, from their perspective, they were making a difference. You never know who was complicit and who just got caught up in all of this.

Establishing shot of the outside of the troll farm. There is police tape, broken doors and windows around the building.

Page 55

Exterior: Later the same day, outside the NuNewz office.

Mr. Zhang pulls up in a Town Car.

The driver gets out and opens Mr. Zhang's door.

Mr. Zhang gets out and sullenly surveys the damage. The image pans out.

Zhang: This makes no sense! They were all here just a few days back! I should have known, it just seemed too good to be true.

Mr. Zhang sees police tape covering the building and a Government Investigation notice.

Close-up of Mr. Zhang's face, where he is visibly sweating.

He tries to make a phone call. A message shows up on the screen, stating that the number is unavailable.

Page 56

The scene shifts to a police holding cell in West Africa.

A security officer comes up to Nana.

Nana (pleads): Please let me go! I am innocent! I swear it. We did nothing wrong! I was hired here. PLEASE call my mother...

The officer: You were caught at a workstation creating false information for malicious use online. Your handle has also been traced as connected with this activity.

The courts will now decide if you are guilty. Don't worry... You are not alone! Looks like you will all be getting a chance to become even better friends during your stay with us here at the station...

Scene pans out to a number of other people, including the HR lady and the founder. A tear rolls down Nana's cheek.

Page 57

Symous office overlooking Central Park, Manhattan, New York City.
Interior: Chairman's office

Chairman (talking on the phone from his office): I believe some congratulations are in order!
Well done everyone!

Our Data teams have reported that the takedown of those international troll farms has resulted in a dramatic decrease in the number of incidents relating to disinformation online. It's trending in the right direction and we have a lot to be proud of ahead of the election.

But we must not let down our guard.

I am already hearing rumblings of activity by disinformation cells in other parts of Asia. These guys are nimble.

Rachel (talking on her cell phone): Thanks Mr. Chairman. Let's just say it's a "team sport." Now Andre can go back to that storefront he calls an office and let the "professionals" deal with the next challenge.

Andre (talking on his cell phone): Hey... watch it! Our storefront punches well above our weight class. On a more serious note, thank you for taking me along on the journey. I have learned so much! It's great to be a part of Symous.

Chairman: We are just getting started Andre. As we head into the final weeks ahead of the big Election Day, rest assured that we will be calling on you again should something surface.

NOTES FROM CISA

Disinformation is an existential threat to the United States, our democratic way of life, and the infrastructure on which it relies. The Resilience Series (of which this is the first title) uses the graphic novel format to communicate the dangers and risks associated with dis- and mis-information through fictional stories that are inspired by real-world events.

The Resilience Series graphic novels were commissioned by the Cybersecurity and Infrastructure Security Agency (CISA) to share information to illustrate:

- 1) Foreign actors are trying to influence U.S. security, economy, and politics through the malicious use of online media to create and amplify disinformation.
- 2) While the strategy of using inaccurate information to weaken and divide a society is not new, the internet and social media allow disinformation to spread more quickly than it has in the past.
- 3) Deepfakes, bots, and troll farms are just some of the emerging techniques for creating and spreading disinformation.

CISA encourages everyone to consume information with care. Practicing media literacy – including verifying sources, seeking alternative viewpoints, and finding trusted sources of information – is the most effective strategy in limiting the effect of disinformation.

For more information and further reading about disinformation, please visit the Countering Foreign Influence Task Force webpage, www.cisa.gov/cfi-task-force.

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Back cover

We live in a world where the internet is rife with misinformation and disinformation. In a precarious digital world, the need for awareness about this risk is greater than ever. The Resilience Series graphic novels have been created as a medium to communicate the threat of inaccurate information and its impact on our world.

In REAL FAKE, the first story in the series, we meet the protagonist Rachel O'Sullivan, a gamer, patriot and member of Symous, a group fighting disinformation, deepfakes, troll farms and foreign interference in elections as Election Day approaches.