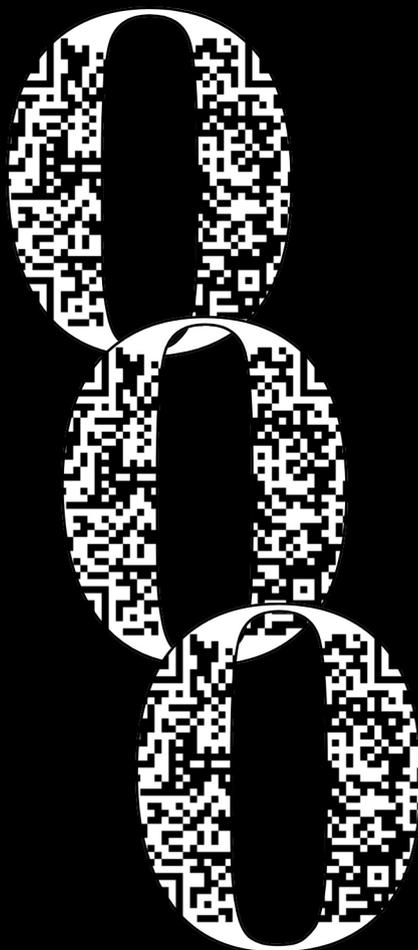


ZERO
MARGINAL
VALUE



J A S O N C O L E

ZERO MARGINAL VALUE

JASON COLE



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THE JOB

Liam leaned back against the cool cement block wall as the sun crept over the top of the building. A bead of sweat ran down his forehead and crept to his eye. He blinked it away, as he shoved a silver shopping bag behind one of the dumpsters. He wished again that the gray narrow alley filled with garbage but no active cameras, wasn't the only place they could find to start the job.

"Keema, we need to get started or I'm going to look like a wet cat," he whispered. "And, ironically, the coffee is getting cold."

"Almost time. We should get peak traffic flow in a few minutes," she said. Their tactical communication system picked up the slightest whisper, and transducers embedded behind his ears fed her voice directly into his skull. No one could overhear their conversations.

Squinting into the harsh morning light, he could just make out their little quadcopter drone high over the office park across the street. He knew she was watching through its eyes. Keema was his second brain, one he readily admitted was smarter than his

first. She had an incredible ability to integrate the fire hose of incoming data from the drone, local communications, and network traffic. Having her along freed him to focus on the physical mission.

"Looks good. Get started now," she said.

"Starting my checklist," Liam replied. He stretched his arms out. The thin silver wires tattooed into his skin to form his bodynet tingled slightly as they reached full power. As the sensors in his fingers pulsed their test patterns, he did a quick scan. The stream of automated system checks flowed across his specs, a set of smart contact lenses that functioned as his heads-up display.

As the messages scrolled by, he rolled his neck, flexed his jaw and blew out a few deep breaths, trying to ease the tension creeping up the side of his head.

He pushed himself off the wall and glanced down the alley. The stink of rotting garbage from the battered green dumpsters burned his nostrils.

"Come on... Let's go. The smell is going to kill me," he said.

"Oh no, you must endure a mildly unpleasant smell before making a boatload of money. You poor thing."

Liam pressed his lips together, trying not to laugh out loud.

"Touché," he whispered. He refocused on system checks and re-running the plan in his mind.

"Dammit!" An error message flashed in the upper right side of his vision. "Hey, Keema, the dragonfly control module isn't loading," he hissed. If Denver hadn't gone so badly, he could have afforded the latest upgrade.

"You don't need the dragonflies today. They aren't in the mission brief," Keema said.

"The mission brief is never perfect. I'm always better when I have all my tools," he countered. "What if the map isn't completely accurate, or they have more security patrols than we think?"

He flexed his jaw again, trying to fight the tension creeping through his body. They had spent weeks building contacts, analyzing networks and understanding the security. Now they were ready. One mistake and he would miss his payday and dent his reputation. A surge of acid burned the back of his throat.

"You need to calm down, Liam."

"I *need* to nail this. If I can't bring this home, I'm out on the streets. You better hit me so I can focus."

"If you think so."

The medi-patch implanted under his armpit clicked, releasing a dose of beta-blocker. Cool relief surged through his body. His throat finally relaxed. He rubbed his hands as the blood flowed back into his fingers.

"Thanks. Much better. Better living through chemistry," he said.

"I worry about you," Keema sighed.

"I know. That's why I gave you control of the kit. I'd probably dope myself into a stupor. Then neither of us would get paid."

"That's exactly why I worry. We'll talk about it later. It's time to go."

Liam picked up two takeout coffee cups off the lid of the dumpster, then made his way down the alley.

“Watch the puddles, you can’t smell like you’ve been hanging out in a garbage filled alley,” Keema said.

Liam grunted his response and carefully picked his way to the street.

He came to the corner and scanned the road. A little after peak morning rush hour on a weekday in an office complex outside of San Jose. The sidewalks were empty.

"Five seconds, then go," Keema told him. Two G-Cabs rolled by, then the street was empty.

Liam shuffled down the street to avoid sloshing the coffee. Then he crossed the deserted parking lot of the three story NewReal, Inc research park. Four years ago, the parking lot would have been full. Now, everyone commuted in self-driving G-Cabs, rented by the mile. Liam would have taken one himself, but G-Cabs were hard to fool. To defeat the cab's facial recognition, he would need a complete fake identity. He had burned his last one in Denver and building that kind of ID cost more than this job was going to pay.

So, he trudged across the empty asphalt, his khakis sticking to his legs. His fake NewReal employee badge slapped against his thigh as he approached the front door. "Slow down about twenty percent," Keema whispered to him. She put up a cadence meter in his left contact and he slowed to match it.

His change in pace allowed two G-Cabs to pull up between him and the lobby door. They rolled to a stop. When his cadence meter quickened. Liam scurried behind the cars as the passenger doors opened. An overweight, balding man in his fifties got out of the second car. He waved his badge at the lobby door card reader, and the door swung open. With hands full of coffee cups, Liam scurried behind him into the chilled air of the glass lobby. The

lobby was a security air lock, an empty space between two bullet-proof glass walls. Employees needed to badge in and out at both sets of doors. His fake badge wasn't in the internal database. So, he brought coffee.

A woman in her late twenties, with thick dark hair and fashionable octagonal glasses, sat at the receptionist desk in the middle of the lobby. She narrowed her eyes at him. Liam thrust his hip out to show her his badge, lifting one of the cups to his mouth as if he were going to hold it with his teeth. The fingerprint prosthetics he wore were slippery. He had to double clutch to avoid dropping the cup.

"Hold on, sir," the receptionist said, walking toward him. Liam stopped. He lowered the cup, squeezing it to spill a little on the front of his T-shirt.

"Aw damn," he said.

"Don't worry, no one will notice," she said. "I don't recognize you. Are you new?"

"I'm from the San Francisco office. I'm supposed to meet Jim Cornwall to interview for his team. I'm really hoping to transfer over," he said with a weak smile. "I even stopped to get him coffee."

She gave him a little sympathetic smile. Liam shrugged and raised his eyebrows. Her phone rang. "Well, good luck," she said, turning to her desk to answer it.

"Thanks!" Liam said. He hesitated. The employees he had been hoping to tailgate had gone through.

"Thirty seconds until the next arrival," Keema said. A countdown timer floated off to one side. He walked over to the receptionist's desk.

"Yes, Mrs. Killian. I'll make sure lunch is ready for you and your team next week," she said. Liam put one of the coffees on her desk. He pointed at the box of tissues on her desk. She nodded at him. He grabbed one.

"Sure thing, Mrs. Killian. I can look for a time the following week as well," said the receptionist.

He watched the final seconds tick away as he carefully dabbed at the spot on his shirt. He tried to hide his impatience.

A G-Cab pulled up outside, unloading another employee. Liam mouthed a thank you to the receptionist. She nodded and gave him a wave without looking. He could hear the shrill voice in her headset and winced. Picking up the coffee, he turned to follow the man who had just entered the lobby. Seeing Liam, he held the door open for him. He nodded his thanks and walked into the building.

"Mrs. Killian is a hard ass," he muttered.

"I know... but if I didn't demand the best, we wouldn't be the best, would we?" Keema said. "Okay. That was the easy part. You have ten minutes max before the building realizes you don't belong."

"Yes, ma'am," he muttered. The building AI looked for patterns of behavior in its occupants. He had to engage in an approved activity it recognized, otherwise it would trigger an alert and security would investigate.

He walked through the small entrance lobby with stairs up to the second floor on both sides. In front of Liam was a large food court. There was a long line at the stimulants counter, and a few people eating breakfast as they began their workday. Liam headed up the stairway to the landing connecting the two wings of the building. He closed in behind a skinny man in his thirties

as he swiped his badge to the office suite beyond. The man walked through, and Liam caught the door with his foot before it closed. He shouldered the door open and slid into the corridor. The door sighed closed behind him.

He walked down the hallway, scanning the nameplates on the office doors. The carpeted hallway was quiet and peaceful. The suite was almost empty as most of the developers were in their morning meetings.

He followed the map in his display to Simon Williams' office. Simon was the team lead developing New Real's augmented reality overlay technology. According to the rumors, they had finally achieved full-motion, three-dimensional objects so detailed they looked real. It would change the way people would see the world and create billions for whoever owned it.

He glanced through the narrow window next to the door. Simon was inside, gesturing at something only he could see. Liam stepped to the side and shifted both coffee cups into the same hand. With a quick swipe, he tacked a small sticker onto the wall next to the door. It blended into the wall, matching company branding color guidelines. "Sticker is in place," he muttered as he walked away.

"Good work. Five minutes until we are detected," she said.

He turned and walked back toward the entrance of the office suite. He ducked into a small, shared kitchen by the door and threw out the cups.

Liam headed back across the landing into the other wing of the building. Conference rooms lined both sides of the hall. Most of them were full of developers in their morning meetings, their attention firmly fixed on the screens as the project AI's marched through schedules, progress reports, and issues. The machines

watched their progress, constantly adjusting plans to meet corporate deadlines. Liam felt the unblinking AI presence in the network, but their focus was so narrow they couldn't see him yet. He moved faster down the hall as he scanned the meeting schedules on screens next to the doors.

Finally, he found an empty room and opened the door. He took out a marble sized watchdog and placed it on the floor against the wall. Then he ducked inside and closed the door behind him.

"I'm in," he said. He drew a work deck the size of a pack of cards out of his pocket and placed it on the table in front of him. Everyone at NewReal had one to augment their bodynets' processing power. The work deck connected with his specs and started sifting through the local network traffic, looking for a way in.

A few moments later, the deck sent him passwords from one of the marketing managers. "Word to the wise. Don't use your dog's name and your birthday if you like to share pictures of your dog on your birthday," he muttered.

He hunted for the augmented reality project code. There was an urge to grab everything he could find but the people who bought his services didn't like big smash and grabs. He passed over several promising targets and finally located the file he needed. He quickly copied it to his onboard bodynet storage.

He sighed as he scanned the data. "They've encrypted the database," he whispered. Without the encryption keys, it was worthless.

"We planned for this. He's still scheduled for his regular meeting with marketing," Keema said. She had spent the last week making meeting requests to Simon's automated scheduler. His

regular meeting pattern had emerged like a pencil rubbing of a gravestone.

"I'm ready," he said, flexing his fingers.

"He just left his office." she said. "The sticker sensor cloned his key, so we are good to go. Move it. Three minutes until the building knows you are there."

THREE MINUTES

"I'm moving," he said. He picked up the deck and left the room. On the way out, he stopped to tie his shoe lace, and palmed the watchdog, dropping the small bot into his pocket. As he approached, the door to the office suite opened from the other side. Liam grabbed it and held it open. He smiled at Simon as he entered, exchanging a small nod. Liam watched him head for the conference rooms and slipped through the door.

He walked over to Simon's office and dropped the watchdog. He touched the lock panel and the antenna embedded in Liam's finger sent the access code. It gave a happy chirp and popped open. With a quick check of the hallway, Liam stepped into the small office. A silver workstation was neatly aligned with the corner of the table. Liam took a snapshot of the space with his specs.

"You need the physical unit," Keema said. "The keys are specific to the machine. We can reverse engineer the hardware encryption to unlock the database, but it will take a while."

"Yeah, yeah," he grumbled. He had hoped to avoid this. In the best operations, he simply copied the data he needed and walked out. It was hard to think of it as stealing. But today, he couldn't pretend he wasn't a thief.

He pocketed Simon's work deck and then took his own deck and put it on the desk. Visual guides in his specs helped him put it in the same place. Connecting to it through his bodynet, he sent a special packet of code he had developed. The machine emitted a small whine. Then there was a pop and a thin curl of smoke floated out of the back. Anyone inspecting the deck would assume the power supply had failed and destroyed the machine.

"I've got it," he said.

"Good... let's get out... oh, shit. Liam, Simon just used his ID to buy a snack. The building noticed he can't be in two places at once. There's a security alert. Get out now!" Keema said.

"Dammit!" Liam hissed. He looked around, letting his system compare the office to the snapshot he had taken. Everything lined up. He backed out and closed the door. He ran through the narrow hallway toward the door to the landing.

"Liam, the watchdog," Keema said.

"Shit," he murmured. He spun around and ran back to the office. He picked the drone off the floor without breaking stride.

"They're in the office suite," Keema said.

"A dragonfly would be useful right now," he whispered.

"And I'd like a pony! Keep moving, we'll get you out."

He circled the quad of offices and headed for the small kitchen area. He pulled a disposable cup off the stack and hit the button on the drink machine. Leaning against the counter facing away

from the hall, he hoped he looked relaxed. He heard two guards run past behind him. They would circle the office quad, letting the AI scan faces through their specs.

Liam exited, turned into the corridor behind them and hurried out of the office suite. He scurried down the stairway, and into the cafeteria. In the lobby, two security guards checked everyone leaving the building.

"Dammit. They've blocked the exit already," he said. He moved into the cafeteria, looking for a route out. The glass back wall opened onto a grassy courtyard. But there was no way out of the courtyard except back through another part of the building.

"Cops picked up the alert. Drone inbound. I have about a minute before they get here," she said.

He winced. Keema would have to move their drone coverage out well before the police unit arrived. "I have an idea. Hold on," he replied.

He moved as quickly as he dared to the VietPhong stand. Like the other food counters, it was completely automated, owned by a local chain. They were marketed as robot food trucks, but without the wheels and engine. "I'd like a tofu pho."

He stood to one side of the camera, letting the sunlight from the courtyard backlight him.

"How hot would you like it?" the kiosk replied.

"Hot," Liam replied, tapping his foot in impatience. "Damn helpful machines. C'mon, let me pay." he muttered to himself.

"Thank you. That will be twenty dollars. I am unable to process your image. Please use your ID card to pay."

Liam touched the card reader and transmitted Simon's ID code to pay for the meal. He hurried away from the kiosk, positioning himself by the stairs. He could see the lobby and the front door. He knelt as if to tie his shoe.

"The building sent an alert about Simon in the cafeteria," Keema said.

The two guards from the lobby jogged into the cafeteria, stun guns at the ready. The NewReal employees gave them a wide berth. Liam now had a clear path to the door.

Liam stood and walked to the lobby. As he opened the internal door, the receptionist's phone rang. As she looked down he walked through the lobby, head turned away from the cameras. He pushed through the front door into the blast of hot air outside. He turned to get out of her line of sight as quickly as possible. Once he was clear, he walked as quickly as he dared across the parking lot.

"Get back to the mall ASAP. I've got to bug out. I'm going to lose coverage in a few minutes. Stick to the plan and I'll pick you up on the other side," Keema said.

"Got it. Talk to you soon," Liam said. In the distance, he heard the low growl of a larger police drone. His neck tensed as he waited for the prickling of the police's forced network recognition signal. Every bodynet had a built-in ID that had to respond to the police signal. There was no way to hide from it. He had to get out of the drone's range. He began to run.

SHOPPING

Liam was back in the alley he had left less than an hour earlier. He retrieved the shopping bag he had hidden behind the dumpster and stripped off his sweat-soaked T-shirt. His silver bodynet tattoos glistened in the sunlight as he put on a clean shirt.

He then pulled out a large, dark gray overcoat and slid it on. He relaxed as it wrapped itself around him. It was the most expensive thing he owned. Made of bullet resistant, reactive cloth, it had a range of sensors and extra power supplies. Wearing it had saved his life more than once. The tension eased from his jaw and shoulders as the coat reintegrated with his systems and its' cooling system kicked on.

He slid his dirty T-shirt into the bag under a shirt he had purchased earlier that morning. Buying the shirt created an electronic trail and an excuse to be in the mall. He checked himself over and blew out a sharp breath.

At the service door his hands tingled with the frenetic electromagnetic chatter of the mall network. He reached out and found

the quiet area next to the door. The security cameras were still offline, their wireless chatter silenced. Sharp pulses spiked around them as the mall tried to reclaim its eyes.

With a deep breath, he pushed open the door and ducked inside. The white walls were marked with grease and streaks of black rubber, and it smelled like cleaning products and food. But it was quiet and empty. He trotted down the hall, listening for the squeaking tires of a garbage bot.

He approached the door leading back into the mall. He cracked it open, checking for passersby. He had nearly blown a job in Seattle when a man taking his small child to the bathroom happened to see him step through the wrong door. "Doors and corners," he repeated to himself. There was no one in the little corridor leading to the bathrooms. He stepped through and walked down the hall. Liam re-entered the mall, joining the stream of people. Away from the food court, he twitched his hand. As his bodynet released its hold on the outside cameras the mall's presence rushed in like blood into an arm released from a tourniquet. He severed the connection.

Using the pace indicator in the corner of his vision, he moved at the statistical average speed of the crowd. The indicator varied his pace, keeping him within the norms for the mall at this hour. He spent one standard deviation less than the average amount of time browsing. Then he wandered to Brown and Yakushima, a shoe store where he fit the customer profile. Turning off the guidance system, he stepped over the store threshold. A small shiver spread up his back as his bodynet transferred his preferred style and a model of his feet to the shop. The clerk looked up from his screen, alerted by the burst of data and smiled. "Good morning, Mr. Baron," he said. The store overlay displayed the clerk's name in Liam's specs.

"Good morning Victor," he said. "I need a new pair of boots."

"Excellent. We have a few new styles, fresh in this morning. I can have a pair assembled for you here in under an hour," Victor said. Liam noticed the fine scrollwork on Victor's hands as he reached below the counter and pulled out two plastic insoles.

"Nice elaboration," Liam said, gesturing at his hands.

Victor inspected the back of his hands. "Thank you. I think it's nice to have some decoration."

He waved Liam over to a short platform set in front of three screens. Then he set the insoles down and stepped back. Liam took off his shoes and stepped onto the plastic templates. In the mirror, the boots were overlaid on his feet.

"You don't find the decoration interferes with your transfer rates?" Liam asked.

"It's a small price to pay, I find. It's not like I'm in the military," he said, nodding at Liam's blocky, hard-edged tattoos.

"That was a while ago," Liam replied, curling his hands back into the coat.

"Of course, I meant no offence. Just like our footwear, we must choose the fit, fabric and sole to match the application. We have a wide range of choices. There are a great number here in the store. Any unusual requests can be shipped in a day." A menu appeared in the screen in front of him, with the fabric and color options available in the store.

"I'm pretty straight forward. I'll take the black, with the electrical generator in the sole. Oh good, you have ballistic nylon uppers. I'll take those." He shuddered as the cost of the boots appeared in his specs. He had told himself he needed them this morning. The

power output from his current pair was decreasing and they were starting to hurt his knees.

"Excellent. Those will be ready for you in twenty minutes. Can I interest you in a pair of loafers as well?" Victor said, smiling. His eyes flittered back and forth as he read something in his specs. Liam checked the mall feed and found a security alert about the door he had used, but they didn't have a picture of his face.

"No, thanks. I'll be back to pick up my boots in a little while," Liam replied. He walked out in what he hoped was a casual manner and merged back into the crowd. He resisted the urge to hurry as he made for the mall door.

ESCROW

Outside he crossed another empty expanse of black asphalt to the Apollo coffee shop and walked into the small building. The smell of coffee was thick in the air and he immediately perked up. He knew it was artificial, but it had the desired effect. He shook his head and found a table. Then he signaled the system for his usual soy and stim. It tasted surprisingly close to a latte for something produced by engineered yeasts. "Or what you think you remember it tasted like," he muttered to himself.

A young, attractive brunette in a too-tight Apollo t-shirt, picked up the mug from the burbling dispenser. She walked it over to his table. He smiled and nodded at her. Her smile in response failed to reach her eyes.

"Thanks, Arya," he said, reading her name off the overlay in his specs.

"You're welcome, Liam," she said, obviously reading a script from the store customer relationship system. With the right access she

could learn more from the store database than he'd ever tell her in a month of dating. He knew because he had stolen that data for a job two months ago.

He watched her pick up another drink out of the machine and walk over to a middle-aged man with grey graphene tattoos. Liam noticed the scars from the removal of another bodynet. The man stared at Arya's chest as she approached and her butt as she walked away. Liam looked away in disgust.

Liam wondered how long he could do Arya's job. The machines timed every order. Scripted her interactions with customers to ensure optimal emotional response. And docked her pay if she deviated from their plan. He added a generous tip to the coffee order.

Adding a wireless connection to his tab, he accepted the terms of service, although he had no intention of following them. His bodynet made an anonymous, encrypted private connection to his personal server. He pulled out the small silver box he had stolen from NewReal and connected it to his network.

"I'm on-line and connected to the work station."

"Great. I've got the connection. I'm running the encryption key generator now," Keema said.

He turned his attention back to the combinations of numbers, letters and symbols streaming through his vision. Keema's systems searched for the right combination of hardware keys to unlock the database.

Experience told him this might take a while, so he pulled up the latest news feeds. The first story caught his eye. "Lung fever growing rapidly in North America! Lung fever, an antibiotic-

resistant form of pneumonia, was first reported in India last year. Half the people who contract it die within a week, and another third within a month. Will the US be next? Is this the one?"

Liam couldn't decide if the threat was real or the latest in a long string of disease scares. Every new bug sparked a huge inflammatory wave of press. But then they disappeared with the next mass shooting or pandemic du jour. Liam hoped this would disappear as well. It was likely something was going to break out and put a dent in humanity's teeming billions, but after so many false alarms, it seemed more distant than ever.

The next story was closer to home. "The Worm's latest hack reveals payments to top senators, including majority leader Shelton to approve the American Restoration Act that privatizes disaster response. They also released the following statement.

"The capitalist turns the natural world into money, they turn the built world into money, they turn our relationships into money, they turn us into money. If, as capital, we do not provide a return to them, we are liquidated. Our children are taken from us. We are cast out, made to wander the concrete wilderness they have created.

But the capitalist machine is ever hungry. It must constantly be fed and its output consumed to pay its masters. Everything that is not-capital must be turned into money by the manipulation of a colonized human race. Now they will turn our tragedy into money for the sake of the few."

Senator Shelton could not be reached for comment.

Liam pushed away the news in disgust. Of course, they were paid. He didn't expect anything different anymore. The Worm made him nervous. They dug up scandal after scandal, but over time their rhetoric was getting more radical. He worried they would start causing real damage soon.

The deck chimed, bringing him back to the job. He opened the NewReal project and scanned the data. The list of thousands of training cases and output results told him he had what he needed. NewReal had trained a machine learning system to render virtual content mapped to the real world. He looked over the output graphics, impressed with the way they had captured the variations in light and reflections.

He had dreamed of becoming a software engineer in his teens. He wanted to create something out of nothing using only imagination and logic. He had lasted three months as an intern after the army. But there was too much sitting, too much grunt work. And that was before the AI's had taken over writing the code.

Liam closed the database and encrypted it with his own keys. With a sigh, he uploaded the file to his own private server, which then forwarded it on to an escrow server in Manila. He sent the encryption key to another escrow server in Switzerland. Whoever the client was would pick it up in exchange for his payment.

The upload completed, he finished his drink and left the Apollo. He walked back across the parking lot and into the mall. As he re-entered the cool, soft air of the Mall, he heard the hourly fountain show begin. He re-engaged his guidance system, making sure he didn't hurry.

Victor at Brown and Yakushima was putting his new boots in a box. There was no need to try them on. The boots would fit perfectly, built from a 3D scan of his foot. So he accepted the box and gestured at the payment terminal to complete the transaction.

With the box tucked under his arm, he walked out of the mall and summoned a G-Cab for the ride home. As he sat down, the

car connected to his bodynet to confirm his identity and then drove itself out of the parking lot. Across the street, the NewReal offices were quiet. It was as though he had never been there at all.

WHAT NEXT?

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