

Upload

By Randy Lubin

It was close to midnight and the office was serene. The servers hummed their sleepy frequency; the quiet punctuated only by the soft tapping of keys and the occasional cough. The building was dark, save for a glow emanating from a room in the northwest corner of NeuroTech, Inc.'s basement.

Large flat-screen monitors dominated the walls and bathed the room in azure light. Korey Turing stared intently at the central screen, absorbing the data from the most recent simulation. After a pause, he swiveled his wheelchair to a side screen and began editing code from a keyboard on his lap. He rolled himself up to the screen a few minutes later, squinted at the tiny lines, and triple checked his latest changes.

Content with the updates, Korey wheeled back to the center of the room and, with a few keystrokes, issued started a final test simulation. This round of adjustments was particularly important as they prioritized the destruction of pain receptors in the scanning process. The status bar crept across the screen; the universe never seemed to move slower than when he waited for a simulation to finish.

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Korey's fascination with the brain took hold roughly the same time he was diagnosed with the Disease, though he could not remember which came first. He was taking a smattering of science courses his freshman year at MIT and he frequently noticed that many of them referenced the brain or the mind in one way or another.

That winter he learned of the Disease, which after destroying much of his nervous system would leave his mind trapped in a useless body.

He first encountered the concept of brain uploading through a science-fiction story; it was in a magazine he flipped through while waiting in one of the myriad doctors' offices he visited that year. In the story, aliens would abduct humans in remote, rural areas and scan their brains aboard their UFOs. After returning their captives to Earth, they would use the scan to recreate the humans in a simulated computer environment. Then, they would perform all sorts of cruel experiments on these virtual humans that their ethics precluded them from doing on the originals. Unfortunately, the simulated men and women felt every pain of the experimentation and insisted on their "realness" until the moment the aliens deleted them from the system.

The story was not particularly well written and the characters were rather flat, but Korey became enthralled with the idea of a device that could scan a brain and recreate the mind outside of the human body. He met with neurology, psychology, and computer science professors to discuss whether such a machine was possible. While most conceded that it was theoretically possible, they warned that it was infeasible with the current technology and that decades of progress were needed before a one could build a similar apparatus. This did not discourage him and he voraciously devoured books and papers in the related fields.

Korey graduated MIT with a dual major in neuroscience and biomechanical engineering and stayed at the school to begin a rigorous doctoral program. By the time

he earned his Ph.D., he had published numerous papers and garnered the respect of the scientific community. He researched brain-scanning methods and co-developed a new technique that could gather live neuron-level data. For his dissertation, he invented a method of representing the brain as software which incorporated cutting edge neuroscience and psychological theories.

Even then he had a degree of focus and obsession unrivaled by his peers. During a stretch in his final year he sequestered himself in an office, cut off external communication, and worked with only two hours of sleep per night. This ended only when his concerned advisor broke in the door and threatened Korey with expulsion if he did not start taking care of himself.

It was during this time that he began to feel the first symptoms of the Disease. Most mornings he awoke with either numbness or sharp pain in his extremities, depending on the day. His doctor prescribed him light painkillers but after a few days he threw them out, complaining that they clouded his mind. Instead, he dealt with the aches through sheer will power and a bit of meditation.

As graduation approached, private firms and research institutions tempted Korey with lucrative, challenging employment opportunities over expensive steak dinners. NeuroTech, Inc., a diversified biotechnology company, promised him a lab full of bright assistants and the freedom to pursue any he wanted. He accepted and immediately threw himself into his work.

First, he developed a rigorous innovation roadmap, anticipating human brain-scanning technology about as far into the future as his doctor predicted he would live.

He put immense pressure on his assistants, leading to a high rate of turnover but a rapid pace of advancement. The work took over his life as he spent late nights and most weekends buried in research. Before long, he was spending more nights on a cot in the backroom than in bed at his apartment.

He was so fully absorbed in his work that he felt little need for companionship. Still, he kept Gödel, his beagle, in the office for company. Although the office had a strict no-pets policy, his assistants and supervisors looked the other way. They believed that the dog was keeping him sane.

His diligence began paying off; within a few years, he had uploaded a mouse's brain and successfully simulated it in a computer environment. The scanner worked by mapping the brain on a neuron by neuron basis, via high intensity scanners. The data was then combined with detailed biological models and run as a program within a virtual reality. The scanner was extremely accurate but had the unfortunate side-effect of killing the subject with devastating levels of radiation. While the first few trials yielded realistic mice, Korey felt he had achieved significant success once newly uploaded mouse ran a virtual maze as quickly as it ran an identical one in the real world.

Eighteen months later, Gödel began suffering from tumors; a veterinarian gave him even odds of surviving the year. Korey was torn. He believed his scanner was sophisticated enough to upload the dog's brain but knew it would mean never getting slobbered on again. Late one night Gödel's pained whimpers startled his master from

his trance-like coding; Korey was ready. The scan worked perfectly and a healthier, happier Gödel was soon bounding around his new virtual home.

The next morning, in the chilly pre-dawn air, Korey brought the dog's corpse into the forest behind the office complex. He did so alone and digging the grave sapped him of any remaining energy. It was the first time he had been outside in weeks. His assistants found him asleep at his desk, with dirt stains on his khakis; they moved him to his cot and turned off the lights.

Within a year, the Disease claimed his ability to walk and he was confined to a wheelchair. He had fully moved out of his apartment and into the office, as he spent almost all of his time there and his commute was a hassle. NeuroTech, Inc. provided him with a personal assistant to get meals and take care of other errands.

Despite his early luck with simpler animals, Korey struggled to upgrade the system to scan a human. He expressed his frustration by further withdrawing from the world, choosing to speak only to his closest assistants and barely at that. His only respite was the occasional break to play with Gödel. After several years of stubborn persistence, he reached a software/scanner combination that he believed capable of successfully scanning a human, though the brain melting radiation persisted. As he was making the final iteration of tweaks, he began to hear rumors that his NeuroTech, Inc. superiors were reevaluating the project on ethical grounds. "Better type up a new résumé," he heard one assistant stay to another. He ignored those murmurs and sped on with his work.

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A ping, signifying that the simulation was complete, brought Korey out of his reverie. A quick skim of the results told him that the newest version was glitch free and had a 99.5% chance of success. Satisfied with the odds, he wheeled himself over to the scanner, turned it on, and uploaded it with the new protocols. The scanner consisted of a cushioned table with a heavy casing at one end that would encircle the occupant's head during the scan.

The upload and subsequent reboot would take a few minutes and, in the meantime, Korey loaded the artificial environment in which he would reside. When the scanner was ready, he made one last check of all the systems and then hoisted himself onto the scanner table. He struggled to pull his legs up and was breathing hard by the time he had situated himself.

His heart was racing, but now more from excitement than exertion. He clicked the head casing into place around him and commanded the scan to begin. The machine began to whir and Korey's body became thoroughly numb. The table shook and he was bathed in a soft, violet light. A high-pitched whine increased to engulf all of his perception until suddenly, nothingness.

At first, Korey could not see or hear anything. After a minute or a lifetime of lying there he began to feel tingly all over but lacked the ability to move. Gradually, Korey perceived light: dim at first, but slowly brightening. As the tingling subsided, he felt a rough, wet sensation on his face. Indistinct lines and shadows coalesced and he found himself staring into the eyes of his old beagle.