Mapping out the human brain with crowdsourced intelligence and online gaming

In 2005, Sebastian Seung suffered the academic equivalent of an existential crisis. More than a decade earlier, with a Ph.D. in theoretical physics from Harvard, Seung made a dramatic career switch into neuroscience, a gamble that seemed to be paying off.

And yet Seung, a man so naturally exuberant that he was known for staging ad hoc dance performances with Harvard Square's street musicians, was growing increasingly depressed. He and his colleagues spent their days arguing over how the brain might function, but science offered no way to scan it for the answers.

That November, Seung sought the advice of David Tank, a mentor he met at Bell Laboratories who was attending the annual meeting of the Society for Neuroscience, in Washington. Over lunch in the dowdy dining room of a nearby hotel, Tank advised a radical cure. A former colleague in Heidelberg, Germany, had just built a device that imaged brain tissue with enough resolution to make out the connections between individual neurons. But drawing even a tiny wiring diagram required herculean efforts, as people traced the course of neurons through thousands of blurry black-and-white images. What the field needed, Tank said, was a computer program that could trace them automatically — a way to map the brain's connections by the millions, opening a new area of scientific discovery. For Seung to tackle the problem, though, it would mean abandoning the work that had propelled him to the top of his discipline in favor of a highly speculative engineering project.

Last spring, eight years after he and his students packed a computer workstation into a piece of luggage and headed to Heidelberg, Seung published a paper in the prestigious journal Nature, demonstrating how the brain's neural connections can be mapped — and discoveries made — using an ingenious mix of artificial intelligence and a competitive online game.

Read full, original story: Sebastian Seung's Quest to Map the Human Brain