



## CAREER FOCUS

The TetraScience  
team in their  
Boston office.  
TetraScience

# From Academia to **Start-Up**

Alok Tayi, Salvatore Savo and Siping Wang

The co-founders of TetraScience discuss their journey into the unpredictable realm of entrepreneurship.

**S**cientists in academia encounter crossroads at every career stage. As undergraduates, we question whether we should attend graduate school or find a job. As newly minted Ph.D.s, we decide between doing a postdoc or entering the private sector. And as postdoctoral fellows, we may take our chances by applying for a faculty position or seek employment elsewhere.

The three of us were no exception. However, unlike the career paths described above, we opted to start our

own company—an Internet-of-Things (IoT) platform for science called TetraScience. As entrepreneurs from Harvard University and the Massachusetts Institute of Technology (MIT), USA, we left the world of academic laboratories for the risky world of tech start-ups.

Here, we would like to chronicle our experiences creating TetraScience and offer guidance to those scientists and engineers who flirt with the notion of starting their own ventures.

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## How TetraScience launched

Before the age of Mark Zuckerberg and Facebook, there was a time when being an entrepreneur was the mark of a “failed” academic. But now many universities are investing in cultivating an entrepreneurial ecosystem. We have been the beneficiaries of those investments. The TetraScience team is deeply indebted to university-sponsored organizations and programs like the Harvard Innovation Lab (i-Lab) and the Venture Mentoring Service at MIT for their support.

Before we joined together to launch TetraScience, the three of us had independently delved into different fields in the academic, start-up and research domains:

**Salvatore “Sal” Savo:** Sal earned his bachelor’s and master’s in electrical engineering at the University of Salerno, Italy. He pursued his doctorate at the University of Naples, Italy, and was a visiting scholar at Northeastern University, USA. Sal was also a postdoc at the University of Southampton, U.K., Boston College, USA, and Harvard University. Prior to becoming the TetraScience COO, Sal worked on streamlining experimental processes. Currently, Sal is responsible for the hardware product development, product deployment and customer service.

**Siping “Spin” Wang:** Spin, originally from China, completed his bachelor’s at Cornell University, USA, where he double-majored in electrical and computer engineering and applied and engineering physics. At Cornell, he connected lab instruments to perform experiments related to superconducting cavities for particle acceleration in high-energy physics research. Spin then went to MIT, where he began his doctorate in electrical engineering and computer science. He is currently on leave from MIT to serve as the TetraScience CTO.

**Alok Tayi:** Alok is originally from upstate New York, USA. His research career began at the age of 16, and his first job in school was doing laboratory automation for testing nanomaterials. He completed his bachelor’s in materials science at Cornell University and a Ph.D. at Northwestern University, USA. During his doctorate studies, Alok spent his evenings doing low-temperature electronics measurements and his days starting the open-innovation platform, PreScouter. Alok currently serves as the TetraScience CEO.

## The eureka moment

TetraScience was conceived on a cold day in February 2014 when Alok was performing an electroplating experiment with a colleague at Harvard. It took two scientists, each costing more than US\$120,000 per year, to perform a simple temperature recording protocol: One person held a glass thermometer in place while a second person recorded the reaction temperature in a lab notebook. This is the moment when a lightbulb flashed in Alok’s brain: Why can’t a common networked technology like the Nest “smart” home thermostat be used to collect this kind of information?

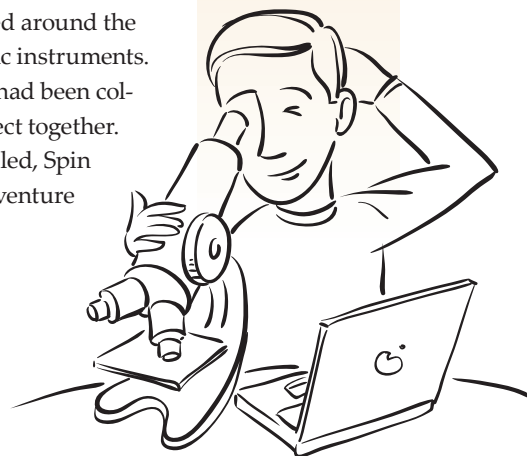
On a train ride from downtown Boston back to Cambridge, Alok and Sal kicked around the idea of making an IoT for scientific instruments. During that time, Spin and Alok had been collaborating on a 3-D printing project together. When the 3-D printing project failed, Spin was pulled into the IoT platform venture with Alok and Sal.

## Starting up

We started building our IoT platform by hacking different pieces of hardware and software together

Do scientists have any business starting a business?

Starting a company is a lot like becoming an assistant professor and building a lab. Whether you are an entrepreneur or an academic, you must communicate the importance of your work, put together a great team, raise funds and ultimately, solve a particularly painful problem. In other words, to start a company, you must aim to create and provide real, lasting value. This notion is at the crux of research as well—all grant applications are centered on the premise that your experiments are necessary.



to help chemists monitor reaction temperatures and to remotely turn off hotplates. Admittedly, we had no grand ambition in mind—we were simply looking to build tools to help us with our own day-to-day tasks. We had no idea then that the work we were doing could provide us with the opportunity to tap into the US\$44 billion scientific instrumentation market.

In September 2014, we were admitted to the Harvard i-Lab and began building TetraScience's hardware and software. In December, Digital Science gave us a US\$25,000 grant, and we hired our first employee in early 2015 (Spin's former college roommate). We took our company through the prestigious

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start-up school Y Combinator, in California's Silicon Valley, during the summer of 2015. TetraScience remained headquartered in Boston, but we would fly to California every week to attend Y Combinator office

hours and dinners. (Now, having grown to more than 16 employees, TetraScience still calls Boston home.)

## The forces propelling TetraScience

This whole process has shown us that a company's founding team matters a lot. This initial group becomes the nucleus around which the business grows, so choose wisely and carefully!

Our combination of complementary skills was important for our initial success. Sal had spent over 10 years building hardware; Spin had spent over three years building web-based software; and Alok had done enterprise sales in his last start-up.

Continuous engagement with our customers has taught us the contours of their problems and needs. As technologists, it is easy to build the product we think the market wants; but the only product that matters is the one that our customers will pay for. And there's no better way to determine what that product is than to ask them.

Scientists are known for their rigor and integrity. At TetraScience, these values seep into everything we do. By recruiting men and women who share these values, we endeavor to never jeopardize our personal character and beliefs.

Ultimately, if you want to start a business, you've just got to jump in and do it. After all, scientists are accustomed to failure—when our experiments don't work, we keep trudging forward. That same grit will serve you well if you decide to pursue a career as an entrepreneur.

**OPN**

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## TetraScience: What is it?

The TetraScience Link is an Internet-connected device that logs onto a WiFi network and acts as a cloud-enabled hub for a lab's scientific instruments.

Instruments are connected to the Link via USB and a series of custom-made adaptors. Link software receives data streams from the instruments and makes it accessible to the user through web-based cloud software.

