



CONTENTS

A Head for Math, a Heart for Caltech

An early fascination with mathematics led Sam Barnett (BS '12) to two unexpected roles: CEO and neuroscience student. At 27, he leads SBB Research Group—an investment firm near Chicago—and is a doctoral candidate at Northwestern University studying the intersection of neuroscience, computation, and marketing. In both roles, he is able to do what he enjoys most—play with large sets of data.

Barnett credits the Caltech community, especially his faculty mentors, for encouraging his curiosity and building his ambitions.



Sam Barnett (BS '12)

[View Full Q&A](#)

A Head for Math, a Heart for Caltech

An early fascination with mathematics led Sam Barnett (BS '12) to two unexpected roles: CEO and neuroscience student. At 27, he leads SBB Research Group—an investment firm near Chicago—and is a doctoral candidate at Northwestern University studying the intersection of neuroscience, computation, and marketing. In both roles, he is able to do what he enjoys most—play with large sets of data.

Barnett credits the Caltech community, especially his faculty mentors, for encouraging his curiosity and building his ambitions.



Q

We've heard that the early days of SBB Research Group began in your room at Lloyd House. Tell us more.

A

During my sophomore year, I started doing independent research with Jaksa Cvitanic [Caltech's Richard N. Merkin Professor of Mathematical Finance] and Peter Bossaerts [visiting associate in finance]. They always made time to discuss papers and ideas with me. This work led me to develop an algorithm for predicting patterns in the stock market.

I didn't set out to invest other people's money or start a company, but Jaksa suggested that I approach it as an experiment—and that resonated with me. I enjoy taking the theoretical and putting it into practice.

Jaksa introduced me to my first investor, and the summer after my sophomore year I began managing \$2 million. I discovered that I loved the experiment. I launched SBB Research Group the following year and started looking for my first employee.

Today, I have a team of 18 of some of the most talented and dedicated people that I know, and we're trusted with over \$200 million. I'm always looking for ways to replicate Caltech's environment within my team. When we hire people we emphasize finding people with strong curiosity and a passion to learn more than the skills they have. A lot of times that means we attract people from different disciplines who have never been in finance.

Q

What gave you the confidence to embark on this venture at such young age?

A

The research done at Caltech borders on the impossible. When you're in an environment where professors are working toward solving the global energy crisis and curing cancer, it doesn't seem so crazy to start a business as an undergrad. I also was having a lot of fun, and I kept approaching it as an experiment that I was scaling step by step.

Q

You've already used your early success to support the Institute by donating to the Caltech Robotics Team. Why do you choose to give back to Caltech in this way?

A

The opportunity to help other people work on an interesting project and to remain part of Caltech's culture of discovery was very rewarding to me. In many ways, I was just like the members of the Robotics Team when I was at Caltech. We share a curiosity to learn and try new things. Whereas I could do most of my research on a computer and collect data from the Internet, the Robotics Team needed physical supplies that required significant investment. It was an easy check to write, and I am proud to support them every year.

Q

Let's talk more about your Caltech mentors. How have they played a role in your academic and professional pursuits?

A

Caltech is a place filled with mentors. I think the way the faculty look at it, they're training their future colleagues, not teaching recent high school graduates. Jaksa was extremely encouraging and supportive of the idea that I could be both a student and a hedge fund manager. My applied math adviser, Niles Pierce [professor of applied and computational mathematics and bioengineering], sets an amazing example for any researcher who wants to apply mathematics to other fields—he applies computation to cancer.

After graduating from Caltech, I pursued a PhD in neuroscience at Northwestern University. My thesis adviser, Moran Cerf (PhD '09), got his doctorate at Caltech and you can tell he is a Techer because of how supportive he is of my interdisciplinary training. He is also extremely creative, and he is always challenging me to do the seemingly impossible. Since I'm interested in applying theoretical concepts in the real world, a lot of my neuroscience experiments are in the field—at movie theaters, football stadiums, political debates—which lets us capture natural brain responses from people. Moran encourages me to try these different types of experiments and is very excited about our work together.

And, in many ways, Caltech students are mentors to each other. My roommate, Riley Patterson, is a very gifted computer scientist, and he inspired me to take my first programming class at Caltech. Then, once I was writing lots of code, he encouraged me to make my code more efficient. And many other classmates suggested different classes to take or papers to read. The entire environment at Caltech is one of continuous learning and improvement.

Q

The mentors you've mentioned appear to share a common trait: high expectations.

A

Yes. I think having mentors expect a lot from you is a really good thing. I always felt it was a vote of confidence rather than added pressure.

I keep in touch with my Caltech mentors even years after being a student there. They're kind enough to read drafts of my research papers, and I try to visit them whenever

I'm in town. They really want the best for me and I continue to feel their support.

Q

Now that you're a graduate student who is teaching courses and working with students, do you have a different understanding of the role of a mentor?

A

First of all, these relationships are individually defined. But I'm always learning from my students just as much as they're learning from me. I have taught a lot at Northwestern—from finance to neuroscience—and people have different ways of understanding information. I am challenged to explore new ways to explain concepts.

And the more I pursue research and work with my mentees, the more I value how much my Caltech mentors made the journey of research and learning fun. Trying to find new ways to interpret data is challenging, and often you'll end up with more questions than answers. Even the most serious Caltech professors had a sense of humor and encouraged us to embrace the mysteries of science and math. If I can be half as good a mentor as the ones I had from Caltech, then my students and employees will be very lucky.