

STEM SPOTLIGHT

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Q How did you select your college major?

A I originally wanted to be a perfusionist (keeps the patient alive by running the heart machine during open heart surgery), but found out that there were several projects under way that would phase out the human element and make the process purely robotic. The timelines that I heard would have been about the midpoint in my career, so I decided that I just wanted to do something medical to help people. I went to a college fair at my high school and starting talking to one of the representatives from the University of Tennessee Engineering Department, and they mentioned Biomedical Engineering as an option. I went home, researched it, and was sold from that day forward.

Q What was the biggest influence in your selection of major/ career?

A I knew that I wanted to pursue a medical career, and was always very good at math and science, and Biomedical Engineering fit just right. The choice to do product development actually was a product of a job that I had in college. I worked in a lab that did computer analysis of patients with knee replacements. I knew after doing that work that I wanted to design orthopedic implants, not analyze them.

Q If you could go back to high school and select any elective course to take that would have better prepared you for college, what would it be?

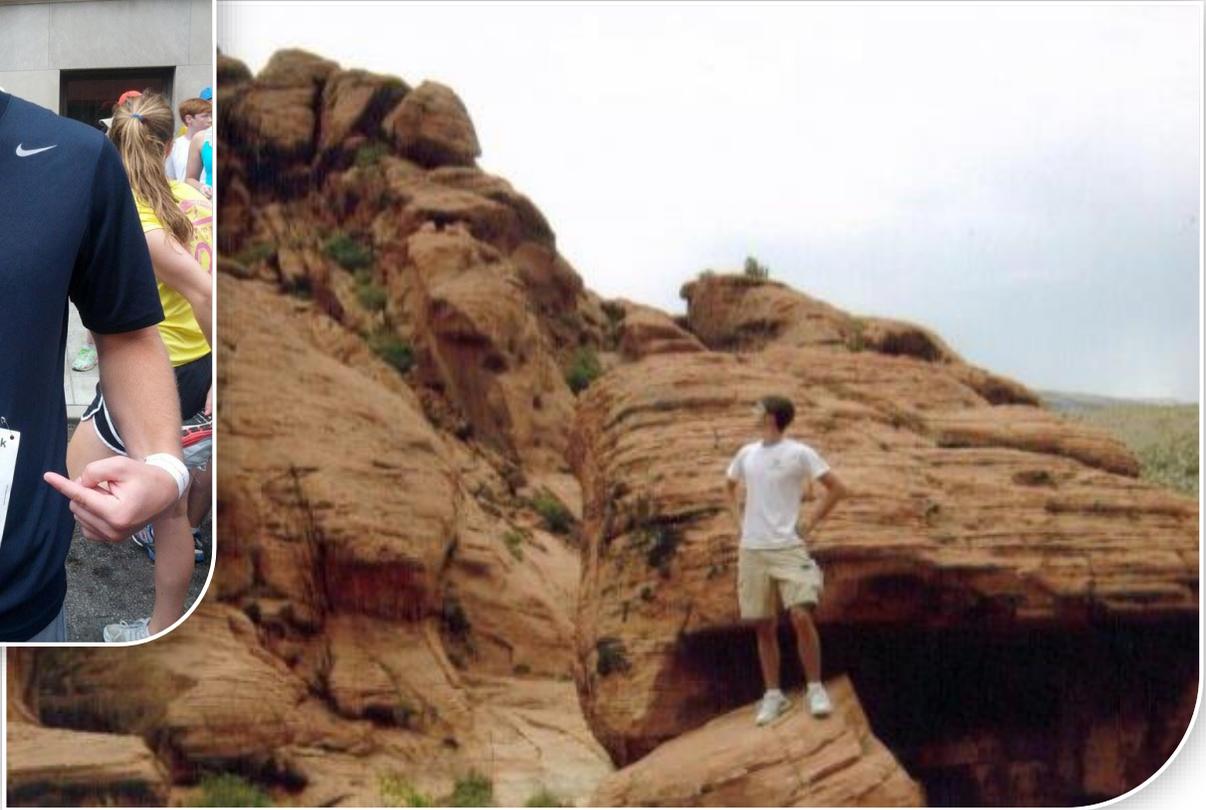
A At my high school, physics was an optional course, and I opted out of it at that time. I wish that I had taken the course because it would have helped me in my early years of undergrad. Also, if you can take some computer modeling/drafting courses I would highly recommend it.

Q What is your favorite aspect of your job?

A I really enjoy the fact that my products improve the quality of life of anyone who receives them.

Q How do you/ your company make a positive impact on society/ our community?

A All of the products that my company designs help to improve the quality of life of patients with foot and ankle ailments. Whether osteoarthritis, or trauma, our products relieve pain and help those patients move toward the type of life they had prior to their pain.



Q What is the most interesting thing you have been able to do in your career?

A I have been able to collaborate with surgeons who are the best in their field to design total ankle implants and instruments. It is very interesting to see their side of the design process, and incorporate that to make a better product.

Q What makes you get up each morning excited about your profession?

A I love to help people and create new things, and I get to do that every day with this profession.

Q How does your career incorporate STEM (Science, Technology, Engineering, and Math)?

A In the initial phase of design, we incorporate a lot of anatomy and physiology, as well as math and engineering to develop concepts to solve our particular issue. As design progresses, we utilize modeling and drafting technology to create concepts that can be prototyped and tested within a cadaver lab. As the designs are finalized, their physical limitations must be tested to determine how long it will last within patients to show international regulatory bodies that our products are safe and effective enough to be sold within

their markets. Finally, as a product is launched, and the initial implants and instruments are used for the first time commercially, there is quite a lot of feedback from the field that may feed back into a design loop to help simplify their job.

Q What advice would you like to share with K-12 students who are considering your profession?

A A couple of pointers here! First, and most important, if design is your aim, make sure you have the stomach for it. Not just in terms of getting the degree, but take an anatomy class, or if you are lucky enough to actually go view a surgery, take advantage. Biomedical Engineers have to deal with either cadavers or live patients, and if you faint at the sight of dead bodies, or live ones bleeding, perhaps mechanical is more up your alley. Second, keep in mind that what you learn in engineering college is only about 10% of what you will use at work. It is the FOUNDATION for the application, and as a result is vitally important. Do not take that for granted.