



## April 2022 Alumni Spotlight: Featuring Jonathan Shulgach

**When did you participate in *FIRST* programs? Which was your team and what was your role with them?**

I joined Techbrick in 2005 when my parents introduced me to a local Lego robotics club. I was already a huge fan of Star Wars Lego kits and as a homeschooled middle school student I was very interested in finding an extracurricular that could get me introduced to technology in a fun way. I had no idea joining this club would lead to the coolest competitions and to meeting some amazing people that are still good friends today! After 3 years in *FIRST* Lego League, I joined Techbrick's new *FIRST* Tech Challenge team in 2008 as the mechanical design lead and got to drive our robot in one of the first FTC scrimmages in the country as well as the world championships in Atlanta (qualifying in our first year)! I was incredibly fortunate to be chosen as team captain for the next 2 seasons where I gained valuable experience in not only bettering our engineering design practices but learning how to lead a team.



**What is your favorite *FIRST* memory?**

There are so many to choose from that it's hard to pick an all time favorite, but one that has definitely stuck with me was going to the world championships in Atlanta and being able to listen to Woodie Flowers speak and give him a high-five afterwards. I think my last name made its way signed onto his famous jacket somewhere...

**What path did you take after high school?**

I started with taking some courses at Harford Community College then transferred to UMBC to pursue a BS in Mechanical Engineering. After graduating I worked in DC for 2 years as an automated control systems engineer, then got my Masters in Biomedical Engineering at Carnegie Mellon University specializing in targeted electrical stimulation. The research I did in my Masters eventually got published in the scientific journal Nature in 2021!

**What are you doing now and what are your career goals for the future?**

Currently I'm a first-year PhD student at Carnegie Mellon in the Neuromechatronics Lab, researching neural prosthetics and developing methods to improve sensory integration with motor tasks. In the future I hope to design wearable interfaces that can provide realistic sensory feedback to prosthetic users and teleoperated robotic arms!

**Did *FIRST* help lead you on your chosen path? Can you please tell us how *FIRST* impacted you in a positive way?**

*FIRST* fundamentally solidified my interests in science and technology when I joined Techbrick, but the excitement my family saw from me encouraged each of my siblings to also join in later years; even my dad became a coach. Our basement turned into a workshop that even Iron Man would have found amusing, with robot parts stored in shelves and a homemade game mat in the middle of our floor. My family stayed involved over the years as Techbrick grew to have 4 FLL, 1 FTC, and 2 FRC teams.

**How have you continued to be involved with *FIRST* as an Alum?**

I stayed involved with Techbrick throughout college as a mentor for Techbrick's FRC team 3941 "Absolute Zero" where I used my experience to help the mechanical team and foster an environment where students felt comfortable to ask anything and try new ideas. After graduating from UMBC I learned about an opportunity to help start a new FRC team in Baltimore City and give 21st Century job skills to Baltimore City Public School students. I officially became a coach for team 6326 "Baltimore Bolts" from 2016-2018. I was so happy to see these kids get real world design advice from other coaches, expert programming tips, and machining skills while filling the workspace with lighthearted fun.

**You've had *FIRST* mentors- what advice do you have to share with others? Do you have any advice for high school students currently involved in *FIRST*?**

For the current mentors, I would say that everything you say and do is picked up by students, no matter how trivial. It's important to lead by example and that includes the passion you put into your work. I have loved working with students that are engaged and outspoken, and I have been surprised just as many times from the quieter students that have blown my mind once or twice with their ingenuity. Make an effort to invest with each student in their own way because they will remember that relationship forever as they shape their careers.

For the current students, these are going to be some of the most exciting events you'll get to be a part of. There's so much to learn no matter what level you start at, and that time will go by faster than you think, so enjoy it as much as you can! Don't worry about the teams that could fill half of an auditorium with their cheer squad or have 20 coaches and 50 students. You are investing in your own future by being a part of something as awesome as *FIRST*, and how you grow beyond is something the rest of the world will benefit from.

*FIRST* Chesapeake 2022

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