The 2025 Science Olympiad Alumni Research (SOAR) Grant $10,000 Award Winner for Medical Research Impacting Human Health

Shivani Nellore
Case Western Reserve University
Cleveland Clinic,
Taussig Cancer Institute

Shivani Nellore is a third-year medical student in the Cleveland Clinic Lerner College of Medicine. Her Science Olympiad journey includes acting as event supervisor and communications lead for the college alumni chapter at U Penn while pursuing degrees in economics and finance at the Wharton School.

With 46,000 people diagnosed with rectal cancer annually, all eyes are on new, targeted therapies that fast-track treatment. Shivani's research centers on genomic adjusted radiation dosing, or GARD. By calculating a patient's radiation sensitivity index from the gene expression of 10 different genes in the patient's tumor cells, a "scoring system" is applied to predict outcomes of radiation, chemotherapy and surgical treatments. Ultimately, GARD therapy aims to both improve patient quality of life and minimize side effects.

Shivani used her experience both as a test taker and writer for Science Olympiad to hone her disease detective talents. "By drawing knowledge from a variety of different fields, I can help rewrite part of the rectal cancer radiation treatment narrative so that we have a higher success rate." Shivani's advisor Dr. Jacob Scott says, "this project could revolutionize how radiation therapy is administered to cancer patients nationwide."

The 2025 Science Olympiad Alumni Research (SOAR) Grant $10,000 Award Winner for Computer Science and Engineering Research

Sarah Parigela
Dartmouth
Department of Psychological & Brain Sciences

Sarah Parigela is an undergraduate in Jeremy Manning's Psychological & Brain Science lab, focusing on building computational models of neural dynamics and cognition. Her research project uses brainwave recordings and behavioral data to predict how well someone is learning in real-time.

Sarah's lab work includes predictive modeling and decoding, using machine learning tools to train models to predict quiz performance based on electroencephalogram (EEG) and behavioral features. She's also exploring advanced "searchlight" algorithms utilizing code written in environments like Anaconda and Google Colab. Nearly 70 subjects have been tested over the past year with the end goal of developing smarter, more personalized learning tools.

Sarah credits her interdisciplinary skills to Science Olympiad: "Events like Anatomy & Physiology, Write It Do It, and Codebusters encouraged me to explore connections between biology, cognition, and technology. These experiences inspired the idea behind this project: using neural signals to understand how we learn and applying that insight to create better educational systems." As founder of the Dartmouth Science Olympiad Alumni Chapter, Sarah ran the first Invitational Tournament on campus in 2025.

The Science Olympiad USA Foundation is a nonprofit organization founded in 2020, dedicated to carrying out the charitable, educational and scientific purposes of Science Olympiad, Inc., a nonprofit formed in 1984. ***This year, two first-place $25,000 SOAR Grants and two $10,000 runner-up SOAR Grants were awarded*** *in each category of medical research impacting human health and computer science and engineering research in cybersecurity, AI, quantum computing and communications.*