

## **Bryan Zhu**

Rising Senior, Bellevue High School, Bellevue, WA

### **Autobiography:**

Bryan Zhu is a junior at Bellevue High School in greater Seattle, Washington. Over the past few years, he has competed extensively in math and computer science, while developing a passion for applying mathematics, algorithmic thinking, and machine learning to real-world challenges. His journey has led to research in combinatorial optimization and blood glucose forecasting, which he has presented at venues such as the IEEE Congress on Evolutionary Computation, the MIT Undergraduate Research Technology Conference, and the IDF World Diabetes Congress, resulting in multiple first-authored publications.

This year, he is exploring adversarial machine learning and reinforcement learning towards a fully autonomous insulin controller at Stony Brook University. At the same time, he is working with MIT PRIMES-USA on dimension reduction for locally convex polynomial optimization using generalized graph isomorphism algorithms. This work has broad applications in optimization problems across AI frameworks, such as Support Vector Machines, Constrained Markov Decision Processes, and graph-based learning algorithms. As a Simons Research Fellow, he is also beginning a new project focused on prediction of drug interactions in acute kidney injury patients leading to a need for dialysis.

He is truly honored and excited to be part of Team USA for the 2025 IOAI and look forward to learning from and connecting with fellow participants globally.

Outside of STEM, he enjoys congressional debate and serves in various roles—including judge, jury member, bailiff, circle facilitator, and advocate—in his local youth traffic court. At home, he can often be found playing with his two Pomeranians or searching for new food to try.