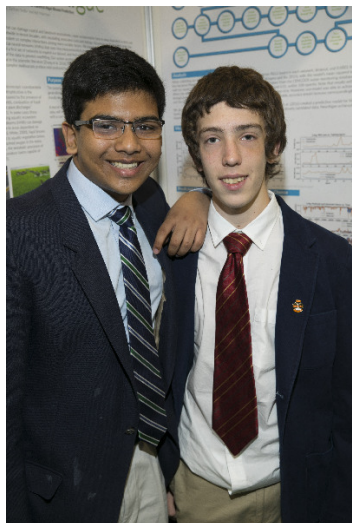


CWSF 2017 - Regina, Saskatchewan



Zachary Trefler, Atif Mahmud

NeurAlgae: A Novel Approach to Harmful Algal Bloom Prediction

Challenge: Information

Category: Senior

Region: Waterloo-Wellington

City: Waterloo, ON, Kitchener, ON

School: Waterloo Collegiate Institute

Abstract: Harmful algal blooms (HABs), sudden, rapid growths of algae in water bodies, pose an increasing threat in modern society. The effects on surrounding ecosystems due to oxygen depletion and toxin generation create large ecological and socioeconomic problems. Predicting HABs is useful, but modern methods can be lacking. We propose an Artificial Neural Network to predict HABs which improves upon prior methods in generalization and accuracy.

Biographies

Zachary - Hi, my name is Zachary Trefler. I am 16 years old, in grade 11 at Waterloo C.I. in southern Ontario. I am mainly interested in physics and computer science, but all sciences fascinate me (University will mean tough decisions). Besides science, I am reading books constantly, as well as running, wood-carving and kite-flying. I also talk to people sometimes. My project, NeurAlgae, was a collaboration between my own ideas regarding artificial neural networks and my friend Atif Mahmud's experiences with an algal boom in BC. Using a neural network, we can predict algal blooms, with a model accurate yet general enough for public use. We are continui...

Atif - The one thing that I'm most passionate about is the power of questions, and not only the use of them to empower myself, but the use of questions to empower those around me. I am an ambitious high school student raised in Waterloo, Ontario and I have been fortunate enough to watch tech startups rise and fall around me. From these experiences I've developed an understanding of the reality of the business world and the value of asking the right questions. From a young age I've always been fond of using travel as a tool to expand your horizons by looking at the lessons of the past. Anthropology and culture has been something that has always intri...

Awards

Value

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| Excellence Award - Senior - Silver Medal Sponsor: Youth Science Canada | |
| Dalhousie University Faculty of Science Entrance Scholarship Senior Silver Medallist - \$2500 Entrance Scholarship Sponsor: Dalhousie University, Faculty of Science | \$2 500 |
| UBC Science (Vancouver) Entrance Award Senior Silver Medallist - \$2000 Entrance Scholarship Sponsor: The University of British Columbia (Vancouver) | \$2 000 |
| University of Ottawa Entrance Scholarship Senior Silver Medallist - \$2000 Entrance Scholarship Sponsor: University of Ottawa | \$2 000 |
| Western University Scholarship Silver Medallist - \$2000 Entrance Scholarship Sponsor: Western University | \$2 000 |
| Total | \$8 500 |