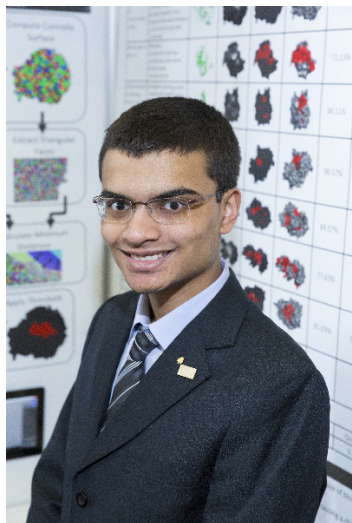


## CWSF 2018 - Ottawa, Ontario



### Advait Maybhate

#### 3DPocket - Computational Prediction of Ligand Binding Sites in Proteins

**Challenge:** Innovation

**Category:** Senior

**Region:** Waterloo-Wellington

**City:** Waterloo, ON

**School:** Laurel Heights S.S.

**Abstract:** Identifying the binding sites of ligands, which bind to proteins, is a crucial task. Understanding the shape and size of such binding sites allows for the creation of drugs that bind to these binding sites, preventing other ligands, potentially stopping the spread of diseases such as HIV. This project proposes a new geometry-based algorithm to tackle the challenge of identifying ligand binding sites within proteins.

#### Biography

My name is Advait Maybhate. I am a grade 12 student and a SHAD fellow from Waterloo, Ontario. My passions include computer science, the natural sciences and mathematics. In the past, I have worked as a software intern at Christie Digital where I improved their camera calibration tools for projection mapping. My latest love is to compete in hackathons, recently winning the CockroachDB prize at Hack the North for a software application that can summarize lectures using speech-to-text technology. Additionally, I love to compete in long distance sports, specifically cross country running and nordic skiing, in which I was the 2016 regional champion. I am also the school champion for the Pascal, Cayley and Galois math contests, run by the University of Waterloo. Currently, I am the president of science club and leader of computer science club at my school where I deliver lessons on several concepts, e.g. recursion, evolution, time complexity, etc., and organize experiments. I competed at CWSF last year, where I created a novel algorithm to identify DNA motifs, winning a silver medal. This year, I continued in the field of bioinformatics, tackling the challenge of identifying protein-ligand binding sites.

#### Awards

#### Value

Excellence Award - Senior - Silver Medal Sponsor: Youth Science Canada	
Carleton University Entrance Award Senior Silver Medallist - \$2,000 Entrance Award Sponsor: Carleton University	\$2 000
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
<b>Total</b>	<b>\$10 500</b>