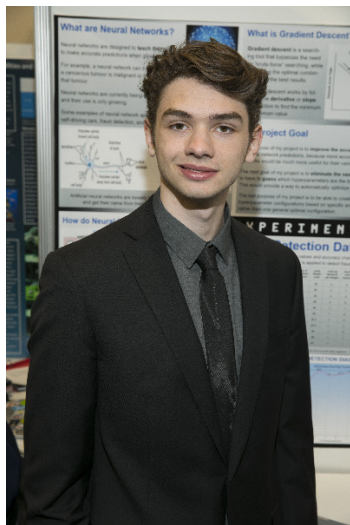


# CWSF 2017 - Regina, Saskatchewan



## Owen Randall

### Improving ANN Accuracy by Optimizing Hyperparameters through Gradient Descent

**Challenge:** Innovation

**Category:** Senior

**Region:** Manitoba Schools Science Symposium

**City:** Winnipeg, MB

**School:** Fort Richmond Collegiate

**Abstract:** Artificial Neural Networks have become an incredibly important part of our modern-day lives. With their increasing use, it is critical that ANNs are as accurate as possible, as it could potentially be the difference between life or death. The program I have developed works to improve the accuracy of ANN by using gradient descent to optimize ANN hyperparameters, resulting in more accurate predictions.

#### Biography

Technology is my passion. I find programming not only fun and challenging, but also an excellent platform for creation. My project was inspired by my desire to improve neural networks by increasing their accuracy. In future, I plan to increase the compatibility of my code so other programs can implement this software for use in a broad range of real-life applications. My advice to other students is to undertake a project about which you are completely passionate. My graduating year has been extremely busy, filled with participation in school clubs, writing AP exams, preparing for the provincial science fair, interning at a software company and playing football. This past summer, working as a service technician, I traveled to a remote northern reserve to install classroom computers in a new school, availing educational technologies to children without previous access. Currently I am organizing summer camps for young aspiring programmers, to teach coding through fun games. This fall, I start the computer science (co-op) program, majoring in Machine Learning. I believe this education will help launch my dream career of teaming up with other dedicated scientists to achieve full Artificial Superintelligence, in a bid to solve society's most pressing problems.

#### Awards

#### Value

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
<b>Total</b>	<b>\$8 500</b>