

# CWSF 2017 - Regina, Saskatchewan



## Marin Schultz

### Novel Prosthetic AutoGrasp Control System and Human-Prosthetic Interface

**Challenge:** Innovation

**Category:** Senior

**Region:** Lethbridge

**City:** Lethbridge, AB

**School:**

**Abstract:** This project proposes a novel AutoGrasp control system that allows a prosthesis to autonomously grasp "Smart Objects" thereby increasing the complexity of the movements achievable with simple sensory input. It further proposes a human-prosthetic interface, in the form of a touchscreen, that functions as visual sensory feedback. Underactuated prosthetic fingers were developed that exhibit self-adaptive behavior and enable the prosthetic to grasp objects reliably.

### Biography

Hi, my name is Marin Schultz. I love building robots, and computer programming. Ever since I realized first-hand that my inventions can have a real world impact and help people, I have been inspired to build prosthetics in particular. I have won several national and international awards for my inventions including previous CWSFs. When I'm not inventing, my favourite thing to do is reading, especially philosophy, history and poetry. My interest in advanced prosthetic design stems from my desire to help a one-handed friend from Lethbridge who visited my 2012 science fair project involving EEG sensors and robotics. When he was able to close my prototype hand using only his mind, he became very excited and said to his father "Dad, I can close the hand!" It has become my passion to develop my biomedical inventions, and find new ways to advance them. I hope to inspire other students to learn, and to be excited and passionate about helping others through science.

### Awards

### Value

CAP Physics Prize - Senior Sponsor: Canadian Association of Physicists	\$1 000
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	\$9 500