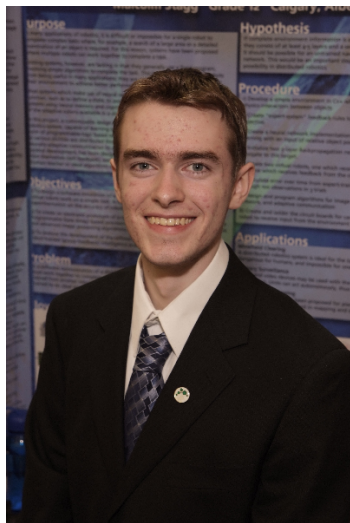


# CWSF 2007 - Truro, Nova Scotia



## Malcolm Stagg

### Distributed Robotics: An Intelligent System

**Division:** Health Sciences / Automotive

**Category:** Senior

**Region:** Calgary Youth

**City:** Calgary, AB

**School:** Alberta Distance Learning Center

**Abstract:** A system of neural-based distributed robotics is proposed for improved performance and environmental interaction. Each robot can learn from an "expert system", group-feedback, and self-feedback. An adaptive communication algorithm is used to share information and present feedback between robots. Computer simulations and a hardware prototype show group-feedback and neural-based robotics as viable possibilities in minefield clearing, exploration and mapping, military surveillance, and other applications.

#### Biography

I am a grade 12 student with the Alberta Distance Learning Centre in Calgary, Alberta. I live with my mother and brother, and have a pet dog, rabbit, and goldfish. I became fascinated with electronics in grade 2, after reading "Wires and Watts" by Irwin Math. Around this time, I began programming in QBASIC on a 386 computer with MSDOS. I have always had a love for math, completing Math 30 in Grade 10. This has been my eighth science fair project, and fifth time at the Canada Wide Science Fair; with all of my projects involving electronics, programming, and math in some way. I have been honoured to receive several awards over the years, including a gold medal in 2003. I enjoy traveling in the United States, and have had the opportunity to attend two International Science and Engineering Fairs in Phoenix and Indianapolis; receiving two awards in 2005. In my free time, I enjoy bicycling and skating, and have done programming work with an engineering company over the past few years to help create a truck monitoring system, which is now being used in North America and Europe. I plan to pursue a degree in Electrical Engineering.

#### Awards

#### Value

Statistical Society of Canada Award Sponsor: Statistical Society of Canada	\$1 000
Dalhousie University Faculty of Science Entrance Scholarship Senior Silver Medallist - \$2000 Entrance Scholarship Sponsor: Dalhousie University, Faculty of Science	\$2 000
The University of Western Ontario Scholarship Silver Medallist - \$1500 Entrance Scholarship Sponsor: University of Western Ontario	\$1 500
Silver Medal - Automotive - Senior Sponsor: AUTO21	\$700
Silver Medal - Engineering - Senior Sponsor: Youth Science Foundation Canada	\$700
<b>Total</b>	<b>\$5 900</b>