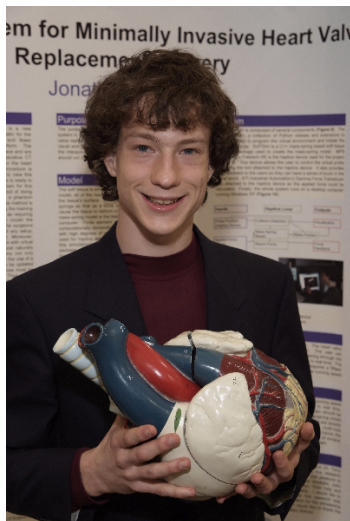


# CWSF 2007 - Truro, Nova Scotia



## Jonathan McLeod

### Training System for Minimally Invasive Heart Valve Replacement Surgery

**Division:** Health Sciences / None

**Category:** Senior

**Region:** London District

**City:** Arva, ON

**School:** A.B. Lucas S.S.

**Abstract:** This project seeks to train surgeons for minimally invasive heart valve replacement surgery in a virtual reality environment. This is a very difficult technique that requires extensive image guidance. The project's focus is to create a simulation that provides the surgeon with visual and force (haptics) feedback to help them train for positioning the heart valve during surgery.

#### Biography

Jonathan McLeod is a grade 12 student attending A.B. Lucas Secondary School in London, Ontario. He enjoys cycling, ping-pong and tennis. He plays the trumpet and competed in the London Kiwanis Music Festival this year. Jonathan also enjoys photography and has placed second in the youth division of the Canadian Geographic Photography Contest in 2004. Jonathan has competed in the London District Science Fair since Grade 9. In Grade 10 he won a summer research position through the Science Fair at the Canadian Surgical Technologies and Advanced Robotics center in London. The following summer he received a scholarship to work on a research project at the Robarts Research Institute in London. After the summer he continued to work on research at Robarts throughout the school year. He also received the "Gene Researcher for A Week" award in March of 2006. This award allowed for twenty-three students across Canada to spend March Break in a leading genetics research laboratory. Jonathan will continue to work at Robarts this summer and will be entering Engineering at UWO this fall where he has been awarded the President's Scholarship.

#### Awards

#### Value

|                                                                                                                                                                          |                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Dalhousie University Faculty of Science Entrance Scholarship<br>Senior Gold Medallist - \$4000 Entrance Scholarship<br>Sponsor: Dalhousie University, Faculty of Science | \$4 000        |
| The University of Western Ontario Scholarship<br>Gold Medallist - \$2000 Entrance Scholarship<br>Sponsor: University of Western Ontario                                  | \$2 000        |
| Gold Medal - Engineering - Senior<br>Sponsor: Youth Science Foundation Canada                                                                                            | \$1 500        |
| <b>Total</b>                                                                                                                                                             | <b>\$7 500</b> |