

# CWSF 2008 - Ottawa, Ontario



## Shannon Hughes

### Out of Thin Air

**Division:** Engineering & Computing Sciences / Automotive  
**Category:** Senior  
**Region:** Timmins  
**City:** South Porcupine, ON  
**School:** Timmins High & Vocational School  
**Abstract:** A renewable energy process for powering automobiles while capturing atmospheric CO<sub>2</sub> is presented. The process involves a cycle of compression, liquefaction and distillation of air to sequester nitrogen for energy storage, boiling it do work using a Stirling Engine atmospheric heat exchanger via depressurized throttling through an air motor followed by exhaust return to the atmosphere. The process restores the global carbon cycle balance.

### Biography

My name is Shannon Hughes, and I live in South Porcupine. I am currently in Grade 12 at Timmins High and Vocational School, and play on the varsity badminton team, as well as labor as president of the student administrative council. Several of my favorite school subjects are science, math and history. Out side of school I spend much of my spare time with friends and family, and participate in extracurricular activities. I am currently participating in dance, cross-country skiing, soccer and piano. During the summer months I enjoy swimming, pilates and spending time at my cottage. I have received numerous awards participating in previous CWSF and regional fairs. Currently, I am Director of Finance on the Mayor's Youth Advisory Council, and Co-Chair of Ontario Teen Leadership North. Several of my other interests include drawing, baking and reading. I one day hope to become a nurse practitioner. Clearly, I enjoy having an active lifestyle and participating in a large variety of activities.

### Awards

### Value

Awards	Value
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
The University of Western Ontario Scholarship Bronze Medallist - \$1000 Entrance Scholarship Sponsor: University of Western Ontario	\$1 000
University of Ottawa Entrance Scholarship Senior Silver Medallist - \$3000 Entrance Scholarship Sponsor: University of Ottawa	\$3 000
University of Ottawa Entrance Scholarship Senior Bronze Medallist - \$1000 Entrance Scholarship Sponsor: University of Ottawa	\$1 000
Bronze Medal - Earth & Environmental Sciences - Senior Sponsor: Petro-Canada	\$300
Silver Medal - Automotive - Senior Sponsor: AUTO21	\$700
<b>Total</b>	<b>\$9 500</b>