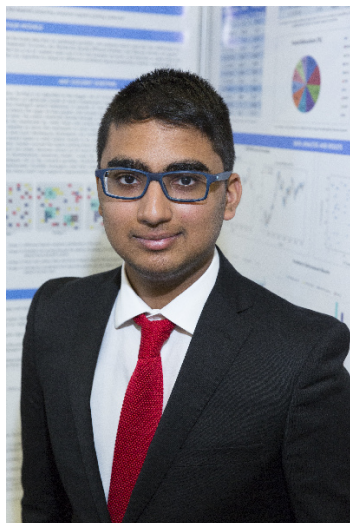


# CWSF 2018 - Ottawa, Ontario



## Sparsh Agrawal

### A Novel Approach to Financial Portfolio Optimization Using BioInspired Computing

**Challenge:** Innovation

**Category:** Intermediate

**Region:** Manitoba Schools Science Symposium

**City:** Winnipeg, MB

**School:** Acadia School

**Abstract:** This project used LSTM networks and Ant Colony sorting simulation algorithm to manage return and risk of a financial portfolio. A new mathematical formula was created to calculate percentage of each selected stock in portfolio, using the outputs of the LSTM networks and Ant Colony sort. A financial portfolio managed this way was found to give consistently better returns with less risk.

#### Biography

Sparsh Agrawal is a grade 9 student. He is a debater, scientist, mathematician and a hockey fan. When he was in the sixth grade he developed his first iPhone app called "The Mind Reader", and he's always had a love for technology. Sparsh has always been interested in using this interest to find solutions for real-world problems, and that has led to many prize-winning science fair projects. This is his second consecutive year attending CWSF. Over the last two years, Sparsh has combined his passions for finance and technology in his research. His latest work focused on the applicability of bio-inspired computing in financial portfolio optimization. Along with his passion for science Sparsh has a keen passion for debate and was a member of Team Manitoba at this year's 2018 Canadian Junior National Debate Championships. He intends to incorporate his passions to pursue a career in technology and finance. Some advice he would give to other students is to do a project on something they are passionate about.

#### Awards

#### Value

Excellence Award - Intermediate - Bronze Medal Sponsor: Youth Science Canada	
Western University Scholarship Bronze Medallist - \$1000 Entrance Scholarship Sponsor: Western University	\$1 000
Total	\$1 000