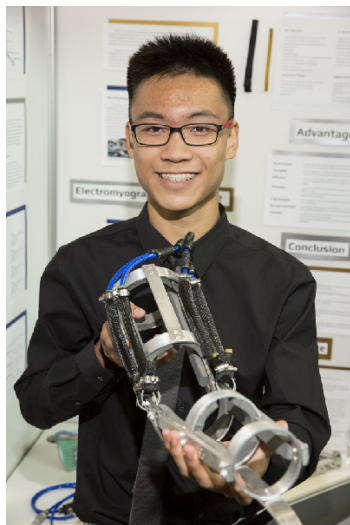


# CWSF 2015 - Fredericton, New Brunswick



## James Ho

### Exoskeleton Arm Utilizing Flexible Air Muscles

**Challenge:** Innovation

**Category:** Intermediate

**Region:** South Fraser

**City:** Surrey, BC

**School:** Semiahmoo Secondary

**Abstract:** Exoskeletons can be used effectively to reduce the stress on a users body. Todays current exoskeletons, however, are heavy, expensive, and power hungry. My exoskeleton arm solves those problems. Using a electromyography sensor and artificial air muscles, my exoskeleton is able to amplify the users strength based on the state of the users muscles. This exoskeleton costs <\$400. Hydraulic exoskeletons cost >\$1000.

#### Biography

My name is James Ho. I was born in Seattle, Washington, in the year 2000. After my sister, Allie, was born, my family and I moved to British Columbia, BC in 2002. At age 5, I found myself very interested in how mechanical things worked. I often took apart broken toys to see that if I could fix them. At the age of 12, I built a flying quadcopter from scratch after many soldering iron burns, fried electronics, and broken airframes. This is also the time when I joined my school band. Currently, I play the violin, the trombone, and the french horn. At the age of 13, I entered my first science fair competition with the mindset of not winning anything. However, my electromagnetic hone charger got me second place. This year, on the other hand, my pneumatic exoskeleton put me on a list to go to Canada Wide Science Fair. If I could give one piece of advice to anyone, it would be to dream big. No matter who you are, or how others think about you or your ideas, if you follow though, your dream will become reality.

#### Awards

#### Value

Excellence Award - Intermediate - Silver Medal Sponsor: Youth Science Canada	
Western University Scholarship Silver Medallist - \$2000 Entrance Scholarship Sponsor: Western University	\$2 000
Total	\$2 000