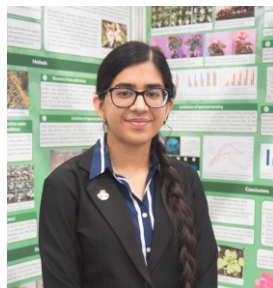


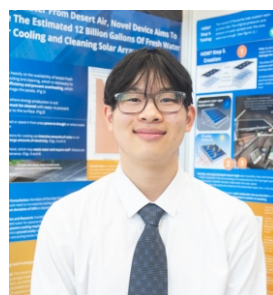
Canada-Wide Science Fair 2024 - Ottawa



Roocha Shukla - *Green-Armour: A Novel Plant Biostimulant*

Roocha developed and tested sea buckthorn berry extract to enhance plant growth and protection from cold stress. The extract also showed antimicrobial properties and helped control aphids. The application would be beneficial in both fields or greenhouses.

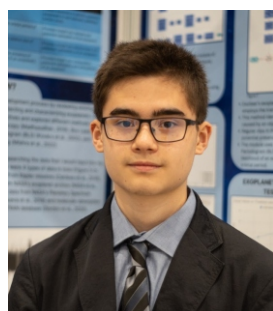
Senior Excellence Award - GOLD, Challenge Award: Agriculture, Fisheries, and Food, Youth Can Innovate Award \$1000, Youth Can Innovate Grand Award \$7000



Casper Dong - *Novel Cooling and Cleaning of Solar Panels Utilizing Hydrogels*

Casper found a novel way to collect water vapor in a desert environment. Water is needed to clean and cool solar arrays in the desert where water is a scarce commodity.

Senior Excellence Award - GOLD, Challenge Award Natural Resources, Special Award: S.M. Blair Family Foundation for patentable innovation.



Tristan Butcher - *ExoSeer: A Comprehensive Algorithm for Exoplanet Analysis*

Tristan created an algorithm to analyze properties of exoplanets – detection, orbit period and detection of molecules in the atmosphere. Techniques included machine learning to interpret a large variety of different data such as light curves and spectral data.

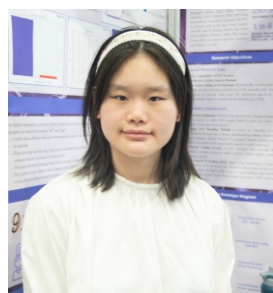
Senior Excellence Award – GOLD



Ameila Pletsch - *Life on Mars: Germinating Edible Plants in Martian Regolith*

Amelia tested germination rates of vegetables in several mixtures of simulated Martian regolith and black earth. On its own, regolith did not support plant growth. Hence colonization of Mars will need something if future colonists are going to grow their own food.

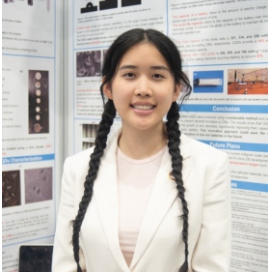
Junior Excellence Award - SILVER, Challenge Award: Aerospace



Abigail Chan - *Decoding Brain Waves using Electroencephalography (EEG)*

Abigail investigated using electroencephalogram waves (EEG) and a brain computer interface to provide control to a six-degrees of freedom bionic arm. She used a small training dataset to develop a system that was affordable, accessible and non-invasive.

Intermediate Excellence Award - SILVER, Youth Can Innovate Award \$750



Anna Chen - *Graphene Quantum Dots for Dendrite Free Zinc-Ion Batteries*

Anna's project developed graphene quantum dots, tiny particles, and coated them onto the anodes of zinc-ion batteries. The dots inhibited the growth of zinc dendrites, improving battery performance.

Senior Excellence Award - BRONZE



Ayesha Abubakr - *AnaLung: A Novel Approach to Lung Cancer Diagnosis*

Ayesha's project was about the development and testing of a low-cost, portable, non-invasive device capable of early detection of lung cancer. It is built on an alkane-based chemiresistor that reacts with harmful gases in the breath of lung cancer patients.

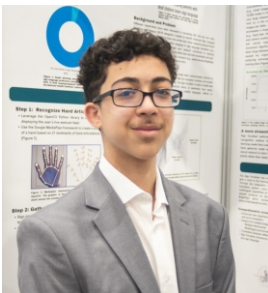
Intermediate Excellence Award – SILVER



Ananth Arunkumar – *RipeNet*

Ananth's project provides a useful tool to the millions of people with colour vision deficiency (CVD). Specifically, people with CVD can have difficulty determining if fruit is ripe. A single image from a cell phone camera can help determine the fruit's true colour, and hence, ripeness.

Junior Excellence Award – SILVER



Sammy Hawari - *Sign Vocalizer: Elevating Non-verbal Communication*

Sammy's project used AI to recognize, translate and vocalize American Sign Language based on lettering. This innovation can significantly improve inclusion and communication for people with hearing and speaking impairments.

Intermediate Excellence Award - BRONZE