

# 2021 Colorado Science and Engineering Fair

## Denver Metro Regional Awardees

COORSTeK

DMRSEF DENVER  
METRO  
REGIONAL  
SCIENCE AND  
ENGINEERING  
FAIR 

### DMRSEF'S BEST OF CSEF WINNERS:

**Second Place - Emily Zhang**

**Fourth Place - Matthew Anderson**

**Fifth Place - Reese Titensor**



#### Senior Animal Sciences

**First Place: Reese Titensor**

Effects of Cannabidiol Exposure on Cortisol Levels in Danio rerio Embryos with Heat Induced Stress

**Honorable Mention: Alex Ramsey**

Determining If Common Waste Products, Coupled with a Simple Base, Provide Stable Nutritional Value for Mealworms

#### Senior Behavioral and Social Sciences

**First Place: Mahi Mehta & Shriya Sriram**

Testing the Effect of Age and Gender on Body Image Perception

#### Senior Chemistry and Biochemistry

**Second Place: Arjun Batra**

Implementation of a Copper Catalyst for Methane Hydrate Formation

**Honorable Mention: Kevin Collins & Sydney George**

Investigating the Impact of ALS-Associated Point Mutations on ErbB4's Proteolysis

#### Senior Energy

**Second Place: Chandler Slowik**

Micro Hydroelectric Generator

**Third Place: Nikhila Narayana**

Catching the Sun: Harnessing Stokes Shift to Increase Solar Cell Efficiency

#### Senior Engineering

**Second Place: Tyler Burt**

A Novel Mask Insert to Reduce Habitual Particle Transmission

**Third Place: Rithvik Ijju**

A Human-Machine Interface That Helps Quadriplegic Patients Communicate by Translating Eye Blinks into Morse Code

**Honorable Mention: Ayan Vaishnav**

Designing and Evaluating the Performance of Novel Airfoil Innovations Using

#### Senior Environmental Sciences

**Second Place: Gitanjali Rao**

Detection of C. parvum Transposons in Potable Water

**Third Place: Maya Hunter**

COVID-19 Shutdowns and Air Quality: A Demographic Analysis

#### Senior Math and Computer Science

**First Place: Emily Zhang**

Fusing LiDAR and Camera Data for Advanced Context Recognition in Autonomous Navigation Sensory Systems Through Multidimensional Deep Neural Network Architectures

**Honorable Mention: Abbas Shaikh**

A Deep Learning Framework for Automated Brain Tumor Segmentation and Survival Prediction Using Multimodal MRI Scans

#### Senior Medicine and Health Science

**First Place: Matthew Anderson**

Early Diagnosis of Parkinsonism Via a Smartphone Application

**Third Place: Aditi Avinash**

Breakdown of Gluten Proteins Using a Newly Identified Combination of Fruit Derived Enzymes to Alleviate Symptoms of Gluten Intolerance

#### Senior Microbiology & Molecular Biology

**First Place Tia Abraham**

Predictive Analysis of Transcription Factors to Directly Reprogram Human Cells

#### Senior Physics

**Third Place: Santiago Castillo**

Influence of Mars's Gravity and Seismicity on Mining Waste Dumps Facilities

#### Senior Plant Sciences

**First Place: Cora Becker & Amanda Behmer**

A Peek into Plastic Pollution: The Effect of Irradiated PET Micro-plastic Leachate on Optical Culture Density of Chlamydomonas reinhardtii

#### Junior Behavioral and Social Sciences

**First Place: Mahi & Shriya Sriram**

Testing the Effect of Age and Gender on Body Image Perception

**Third Place: Phoebe Donovan & Lola Green**

The Cover Up: The Relationship Between Face Masks and the Perception of Facial Cues

#### Junior Engineering

**Second Place: Stefan Zehnacker**

Watch It Wash!

**Honorable Mention: Ersel Serdar**

Dust Begone: Using Arduinos to Clean Mars Rover Solar Panels

#### Junior Environmental Science

**Third Place: Shreya Sethuramalingam**

Chlorophyta and Lemnoideae Components Impacting the Contaminants of H2O

#### Junior Math and Computer Science

**Third Place: Niram Nagafuji & Akhil Ayalur**

Does Benford's Law Match COVID-19 Data?

#### Junior Medicine and Health Sciences

**First Place: Julian Kramer**

Don't UV Burning Me: A Comparative Study of Synthetic Versus Mineral Sunscreens

**Second Place: Mila Vigil**

Brain Waves and Parkinson's Disease: An Early Detection?

**Honorable Mention: Elizabeth Vossler**

Blink-183 - The Effect of Projected versus Reflected Light on Blinking Rate

#### Junior Plant Sciences

**Second Place: Kanshita Dam**

How Do Vibrations from Sound Waves Affect Plant Growth?