

## CREST JANE GOODALL SCIENCE SYMPOSIUM - 2019

### ISEF Regional Special Awards

Outstanding Project in Atmospheric Science

**Sonja Bengston**

*Do the oceans' rising CO<sub>2</sub> levels help or hurt bioluminescent bacteria Aliivibrio fischeri?*

**Bella Kleiner and Halle Olsen**

*The effects of oxybenzone on zooxanthellae*

Outstanding Research in Psychology

**Samantha Leebrick, Kirsten Nordstrom, and Paige Campbell**

*A for Effort, S for Shakespeare!*

Award for Geoscience Excellence

**Haley Budroe and Ellie Counts**

*Opposalt*

Most Outstanding Exhibit in Materials Science

**Jadyn Sherry & Linnea Collett**

*An approach to developing a biodegradable water bottle*

Intel Excellence in Computer Science

**Jessica Yu**

*A deep learning based drowning detection method for dynamic swimming pool environments*

Mu Alpha Theta Award for Excellence in Mathematics

**Alexis Gessler**

*Effect of the friction coefficient on the materials for prosthetic legs*

NASA Earth System Science Award

**Taylor Edwards**

*Remediation after forest fires through the supplementation of Actinorhizal soil microbe Frankia alni in disturbed ecosystems of the Pacific Northwest*

**Caitlin McCabe**

*Improving water quality of areas affected by harmful algae blooms through reactions with Guadinium groups in Saxitoxins*

Taking the Pulse of the Planet Award

**Viv and Yaya Kiss**

*Detecting the presence of polypropylene in Venerupis philippinarum by way of S.E.M. and E.D.S.*

Naval Excellence in Science and Engineering Award

**Adam Steinhilber**

*Gear-based infinitely variable transmission*

**Hayden Wierman**

*Investigating the correlation between noise pollution produced by a continuously operating tidal turbine and impaired embryonic development of *Mytilus galloprovincialis**

Sustainable Development Award

**Logan Rower, Byon Kea, Alex Wilson**

*Incorporating aquaponics and aeroponics into a cohesive agricultural system*

Outstanding Achievement for Ability and Creativity in In Vitro Biology

**Ellie Garcia and Sabrina Smith**

*Testing the synergistic inhibitory effect of copper and acetic acid on the growth of *Streptococcus salivarius**

US Regional Stockholm Junior Water Prize

**Hannah Budroe & Michelle Stevens**

*Variations on directional selection of *Emiliana huxleyi*: culturing methodology and analysis of resulting specimens*

**Hayden Wierman**

*Investigating the correlation between noise pollution produced by a continuously operating tidal turbine and impaired embryonic development of *Mytilus galloprovincialis**

**Caitlin McCabe**

*Improving water quality of areas affected by harmful algae blooms through reactions with Guadinium groups in Saxitoxins*

**Gracie Dunham & Rachal Olaru**

*How to build a water filter out of household items*

Outstanding Science or Engineering Fair Project

**Drayton Nimz and Thomas Pierce**

*Navigation device to solve blindness*

**Vivek Kalavai**

*Effect of weather on flight delay*

**Parker Carlson**

*Generating handwritten Japanese characters to augment current datasets*

Best Use of the SI:

The International System of Units

**Lauren Hurley and Alice Kang**

*The effect of dopamine on the growth of *Vibrio anguillarum**

Most Outstanding Eleventh Grade Exhibit

**Jared Wieland**

*Revolutionary nonsurgical treatment of malignant tumorigenesis*

**Nina Pejcinovic**

*Development of an economically viable, safe and versatile bioplasticejcinovic*

The Biophysics Award

**Natalie Cha**

*Quantifying how SSRIs affect the gut microbiome*

Excellence in Scientific Research in Environmental Health

**Carly Atwood, Zachary Mendenhall, and Ali Nelson**

*A gamer's brain waves*

### **CREST Special Awards**

Promising Young Scientist

Maia Cuevas

Anamae Lundstrom

Summer Tan

Jenna Eckard

Sarah Talbert

Kate Sousley

Anna Olson

Karah Rhoades

Avery McDowell

Kyle Jensen

Sarthak Sameer-Asita

Emma Matthies

Alexis Gessler

Emma Matthies

Elliot Olson

Audrey Kehoe

Best Demonstration of Field Knowledge

**Anna and Sophia Nielsen**

*The Impacts of beaver dams on macroinvertebrates*

Best Experimental Design

**Cade Holland and Cooper Berggren**

*Performance of waterlogged golf balls*

Best "Analog" Project Board

**Leanne Beltman, Emily Soose, and Katherine Gunter**

*Prevention of hot car deaths with a smart car seat*

Best "Digital" Project Board

**Taylor Edwards**

*Remediation after forest fires through the supplementation of Actinorhizal soil microbe Frankia alni in disturbed ecosystems in the Pacific Northwest*

Best Use of Statistical Analysis

**Camryn Pettenger-Willey**

*Cyanobacteria as a biofertilizer: testing the effects of Anabaena on plant growth and performance*

**Meredith Thomas**

*The relationship between gender and traffic citations*

**Rachel Cramer**

*Harvester ant (Pogonomyrmex barbatus) gut microbiome diversity after exposure to permethrin and sodium tetraborate*

Most Creative Project Idea

**Vincent Nguyen**

*Foldable electric harp*

Best Multi-Disciplinary Research

**Pooja and Neel Jain**

*A low-cost, 3-D printed autonomous WiFi tracking search drone to locate missing victims of natural disasters*

Noteworthy Logbook

**Hayden Wierman**

*Investigating the correlation between noise pollution produced by a continuously operating turbine and impaired embryonic development of Mytilus galloprovincialis*

Paul Sherman Award for Enthusiasm in Science

**Isabella Scalise and Camryn Lau**

*The transmission of tobacco mosaic virus (Totamovirus) and the role that salicylic acid plays in the suppression of symptoms*

**Cameron Smith**

*Snails + Water*

**Maria Dowling**

*Rock crystal candy opacity*

Green Chemistry Award

**Katarina Pejcinovic**

*Development of an economically viable, safe, and versatile bioplastic*

Women In Engineering

**Leanne Beltman, Emily Soose, and Katherine Gunter**

*Prevention of hot car deaths with a smart car seat*

## **Very Special Awards**

### **The Future of Our Oceans Award**

#### **Hayden Wierman**

*Investigating the correlation between noise pollution produced by a continuously operating turbine and impaired embryonic development of Mytilus galloprovincialis*

#### **Viv and Yaya Kiss**

*Detecting the presence of polypropylene in Venerupis philippinarum by way of S.E.M. and E.D.S.*

### **Oregon State University Scholarship Winners**

#### **Chloe Kuhlman**

*An investigation of equine assisted therapy and its impact on patients*

#### **Camryn Pettenger-Willey**

*Cyanobacteria as a biofertilizer: testing the effects of Anabaena on plant growth and performance*

## **Category Awards**

### **Behavioral Sciences – Cognitive Psychology – All Researchers**

Carly Atwood

Jasper Benston

Halle Blackmun

Paige Campbell

Ruby Corwin

Maia Cuevas

Juliann Ellsworth

Aidan Erdahl

Aiden Gowdy

Cecelia Grannum

Lauren Grothe

Hayley Jablonowski

Chloe Jones

Chloë Kuhlmann

Samantha Leebrick

Zachary Mendenhall

Abbi Nelson

Ali Nelson

Kirsten Nordstrom

Ava Sechrist

Addison Sobotta

Savannah Staten

Alexis Stohler

Jordy Tawa  
Emily Williams

Behavioral Sciences – Cognitive Psychology – Honorable Mention

**Savannah Staten and Juliann Ellsworth**

*Is proficiency-based learning the better system?*

Behavioral Sciences – Cognitive Psychology – 3<sup>rd</sup> Place

**Samantha Leebrick, Kirsten Nordstrom, and Paige Campbell**

*A for effort, S for Shakespeare!*

Behavioral Sciences – Cognitive Psychology – 2<sup>nd</sup> Place

**Ava Sechrist**

*The effect of trauma on emotional intelligence*

Behavioral Sciences – Cognitive Psychology – 1<sup>st</sup> Place

**Addison Sobotta**

*Is there a pattern between political stance and mental anxiety?*

**Behavioral Sciences – Social Psychology - All Researchers**

Kevin Wang  
Meredith Thomas  
Summer Tan  
Mitchell Stewart  
Tahnna Shaaban  
Katie Sepp  
Halle Schweigert  
Hannah Quast  
Alexis Nord  
Jackson Miller  
Kaydence Meikle  
Olivia McDonald  
Anamae Lundstrom  
Aneya Kazi  
Jake Heinonen  
Averyl Hartje  
Abigail Harpole

Behavioral Sciences - Social Psychology – Honorable Mention

**Tahnna Shaaban and Abigail Harpole**

*How over-parenting affects the mental health of children*

Behavioral Sciences - Social Psychology – 3<sup>rd</sup> Place

**Meredith Thomas**

*The relationship between gender and traffic citations*

Behavioral Sciences - Social Psychology – 2<sup>nd</sup> Place

**Jake Heinonen, Mitchell Stewart and Kevin Wang**

*How the number of absences a student obtains, as well as their involvement in clubs and sports, affects GPA*

Behavioral Sciences - Social Psychology – 1<sup>st</sup> Place

**Olivia McDonald**

*Are students prepared for the real world?*

### **Chemistry- All Researchers**

Maria Dowling

Hannah Gloster

Rhea Grover

Serena Li

Wilfred Lim

Yicheng Lin

Caitlin McCabe

Samuel Montagut

Elliott Olson

Keith Tyler Revilla

Nathan Tidball

Chemistry – Honorable Mention

**Sam Montagut, Wilfred Lim, and Kevin Wang**

*Plastic Paper*

Chemistry – 3<sup>rd</sup> Place

**Serena Li and Hannah Gloster**

*Reducing plastic waste through the use of biodegradable packaging*

Chemistry – 2<sup>nd</sup> Place

**Caitlin McCabe**

*Improving water quality of areas affected by harmful algae blooms through reactions with Guadinium groups in Saxitoxins*

Chemistry – 1<sup>st</sup> Place

**Nathan Tidball**

*Acrylate polymerization: formation of novel antimicrobial co-polymers*

### **Computer Sciences & Robotics - All Researchers**

Mackenzie Bezio

Joseph Burke

Parker Carlson

Seve Gonzales

Hannah Hashbarger  
Vivek Kalavai  
Calvin Mankin  
Sheridan Rodich  
Yusef Siddiqui  
Kate Sousley  
Sarah Talbert  
Jessica Yu

Computer Sciences & Robotics – Honorable Mention

**Mackenzie Bezio**

*Making music*

Computer Sciences & Robotics – 3<sup>rd</sup> Place

**Parker Carlson**

*Generating handwritten Japanese characters to augment current datasets*

Computer Sciences & Robotics – 2<sup>nd</sup> Place

**Yusef Siddiqui**

*Using machine learning to classify CD8 T-cells in pancreas ductal adenocarcinoma from multiplex immunohistochemistry image cytometry*

Computer Sciences & Robotics – 1<sup>st</sup> Place

**Jessica Yu**

*A deep learning based drowning detection method for dynamic swimming pool environments*

#### **Earth and Environmental Science - All Researchers**

Athena Abrahamsen  
Sonja Bengston  
AJ Bovee  
Hannah Budroe  
Haley Budroe  
Ellie Counts  
Audrey Kehoe  
Viv Kiss  
Yaya Kiss  
Bella Kleiner  
Maia McNamara  
Sophia Nielsen  
Anna Nielsen  
Steven Nuffer  
Halle Olson  
Camryn Pettenger-Willey



Jacob Rice  
Nathan Rice  
Hugo Romero  
Collin Smith  
Michelle Stevens  
Peyton Todd  
Auburn Todd  
Kyla Wheeler  
Colton Willeford

Earth and Environmental Science – Honorable Mention

**Collin Smith & Nathan Rice**

*Impact of wood chip layers on the drainage rate of public playgrounds*

Earth and Environmental Sciences – 3<sup>rd</sup> Place

**Hannah Budroe and Michelle Stevens**

*Variations on directional selection of *Emiliana huxleyi*: culturing methodology and analysis of resulting specimens*

Earth and Environmental Sciences – 2<sup>nd</sup> Place

**Sophia Nielsen & Anna Nielsen**

*The impacts of beaver dams on macroinvertebrates*

Earth and Environmental Sciences – 1<sup>st</sup> Place

**Camryn Pettenger-Willey**

*Cyanobacteria as a biofertilizer: testing the effects of *Anabaena* on plant growth and performance*

**Energy and Environmental Engineering – All Researchers**

Hannah Anderson  
Nada Ayach  
Gracie Dunham  
Grace Heaton  
Mithun Karthikeyan  
Byon Kea  
Sarah Martin  
Avery Rose McDowell  
Wally Milner  
Aiden Neudeck  
Rachal Olaru  
Tucker Parrish  
Karah Rhoades  
Logan Rower  
Koharu Sakiyama

Liam Schauer  
Gigi Schweitzer  
Adaela Shearer  
Alycia Supperstein  
Ubong Udoh  
Andrew Walker  
James Webster  
Frances Williams  
Alex Wilson

Energy and Environmental Engineering – Honorable Mention

**Gracie Dunham and Rachal Olaru**

*How to build a water filter out of household items*

Energy and Environmental Engineering – 3<sup>rd</sup> Place

**Adaela Shearer**

*Highway wind energy*

Energy and Environmental Engineering – 2<sup>nd</sup> Place

**Gigi Schweitzer and Wally Milner**

*Sucks to suck: reducing plastic straw waste*

Energy and Environmental Engineering – 1<sup>st</sup> Place

**Grace Heaton**

*Anthocyanins: the key to higher efficiency in organic photovoltaics*

#### **Engineering: Electrical and Mechanical - All Researchers**

Leanne Beltman  
Anna Boyer  
Michael Culp  
Jenna Garlitz  
Sarah Gordon  
Katherine Gunter  
Noah Heidelberg  
Pooja Jain  
Neel Jain  
Katyayani Karlapati  
Emily Newbore  
Vincent Nguyen  
Drayton Nimz  
Anna Olson  
Thomas Pierce  
Emily Soose  
Adam Steinhilber

Engineering: Electrical and Mechanical – Honorable Mention

**Leanne Beltman, Emily Soose, and Katherine Gunter**

*Prevention of hot car deaths with a smart car seat*

Engineering: Electrical and Mechanical – 3<sup>rd</sup> Place

**Emily Newbore & Anna Boyer**

*Prevention of hot car deaths with a smart car seat*

Engineering: Electrical and Mechanical – 2<sup>nd</sup> Place

**Adam Steinhilber**

*Gear-based infinitely variable transmission*

Engineering: Electrical and Mechanical – 1<sup>st</sup> Place

**Pooja Jain & Neel Jain**

*A low-cost, 3D printed autonomous WiFi tracking search drone to locate missing victims of natural disasters*

#### **Bioengineering and Materials Sciences - All Researchers**

Catherine Carr

Elijah Cirioli

Linnea Collett

Jenna Eckard

Sara Hardwick

Payton Heth

James Nicholson

Katarina Pejcinovic

Jadyn Sherry

Bioengineering and Materials Sciences – Honorable Mention

**Sara Hardwick**

*Designing a new prosthetic hand*

Bioengineering and Materials Sciences – 3<sup>rd</sup> Place

**Elijah Cirioli & James Nicholson**

*Using near-infrared spectroscopy to non-invasively measure blood glucose in diabetics*

Bioengineering and Materials Sciences – 2<sup>nd</sup> Place

**Jadyn Sherry & Linnea Collett**

*An approach to developing a biodegradable water bottle*

Bioengineering and Materials Sciences – 1<sup>st</sup> Place

**Nina Pejcinovic**

*Development of an economically viable, safe and versatile bioplastic*

### **Life Sciences – All Researchers**

Makayla Bruce  
Justin Bruce  
Avery Cook  
Madelynn Downs  
Taylor Dundon  
Riley Heinonen  
Kyle Jensen  
John Jozic  
Savannah Kerman  
Evyenia Kitsis  
Katherine Mason  
Maddie Mathews  
Riley Nylund  
Cameron Smith  
Lily Snook  
Alexander Tye  
Ella Weeks  
Hayden Wierman  
Portia Woods  
Abigail Worrall  
Karina Wurtz

### **Life Sciences – Honorable Mention**

**Katherine Mason**

*The effect of drought on Wisconsin Fast Plants*

### **Life Sciences – 3<sup>rd</sup> Place**

**Portia Woods**

*Essential oils: Mite Response; a possible remedy to colony collapse*

### **Life Sciences – 2<sup>nd</sup> Place**

**Hayden Wierman**

*Investigating the correlation between noise pollution produced by a continuously operating tidal turbine and impaired embryonic development of Mytilus galloprovincialis*

### **Life Sciences – 1<sup>st</sup> Place**

**Makayla Bruce & Justin Bruce**

*Husbanding the Limulus polyphemus and determining a proper diet to increase amoebocyte production*

### **Medicine and Health Sciences - All Researchers**

Rodayna Abdelhalim

Katie Bruun  
Pablo Campos  
Ashley Chon  
Sadie Crystal  
Karly Durbin  
Marlee Feltham  
Melody Garcia Gonzalez  
Jillian Greene  
Thomas Johnson  
Anais Kolesnikov  
Athena Lackides  
Rishima Mukherjee  
Samantha Prusse  
Sydney Robertson  
Sarthak Sameer-Asita  
Ahna Schaper  
Keegan Shivers  
Shikha Singh  
Courtney Slaughter  
Aivy Truong  
Jared Wieland  
Maxwell Wilson  
Dana Zaidan

Medicine and Health Science – 4<sup>th</sup> Honorable Mention

**Katie Bruun**

*Proving the presence of a concussion via hormone deficiency*

Medicine and Health Science – 3<sup>rd</sup> Place

**Jared Wieland**

*Revolutionary nonsurgical treatment of malignant tumorigenesis*

Medicine and Health Science – 2<sup>nd</sup> Place

**Dana Zaidan & Athena Lackides**

*Advancing the science of the treatment and pathogenesis of Alzheimer's Disease:  
Assessing Fenugreek's biofilm disrupting properties using a Drosophila melanogaster  
model*

Medicine and Health Science – 1<sup>st</sup> Place

**Rishima Mukherjee, Marlee Feltham**

*A 5th generation CAR T-cell: MicroRNA guided radiogenetics for T-Cell engineering*

**Microbiology - All Researchers**

Zoe Black

Natalie Cha  
Rachel Cramer  
Taylor Edwards  
Ellie Garcia  
Victoria Garcia  
Coleman Henry  
Lauren Hurley  
Annika Jenson  
Alice Kang  
Varsha Karthikeyan  
Camryn Lau  
Emma Matthies  
Samuel Misa  
Amelia Postma  
Olivia Roane  
Quentin Robinson  
Isabella Scalise  
Laura Smith  
Sabrina Smith  
Parker Sullivan  
Aubrey Wagy

Microbiology – Honorable Mention

**Natalie Cha**

*Quantifying how SSRIs affect the gut microbiome*

Microbiology – 3<sup>rd</sup> Place

**Annika Jenson**

*How does the herbicide glyphosate impact the plant rhizosphere?*

Microbiology – 2<sup>nd</sup> Place

**Coleman Henry & Sam Misa**

*Bacteriophages as a supplementary treatment to antibiotics*

Microbiology – 1<sup>st</sup> Place

**Rachel Cramer**

*Harvester ant (*Pogonomyrmex barbatus*) gut microbiome diversity after exposure to pyrethrin and sodium tetraborate*

**Physics and Mathematics - All Researchers**

Cooper Berggren  
Cade Holland  
Alexis Gessler  
Devin Peters

Physics and Mathematics – 3<sup>rd</sup> Place

**Devin Peters**

*What is an optimal oar?*

Physics and Mathematics – 2<sup>nd</sup> Place

**Cooper Berggren & Cade Holland**

*Performance of waterlogged golf balls*

Physics and Mathematics – 1<sup>st</sup> Place

**Alexis Gessler**

*Effect of the friction coefficient on the materials for prosthetic legs*

CREST- Jane Goodall Science Symposium

***Advancing to the Intel Northwest Science Expo – April 12, Portland State University***

Addison Sobotta

Ava Sechrist

Samantha Leebrick, Kirsten Nordstrom, Paige Campbell

Nathan Tidball

Caitlin McCabe

Hannah Gloster, Serena Li

Grace Heaton

Gigi Schweitzer, Wally Milner

Adaella Shearer

Neel Jain, Pooja Jain

Adam Steinhilber

Emily Newbore, Anna Boyer

Leanne Beltman, Emily Soose, Katherine Gunter

Makayla Bruce, Justin Bruce

Hayden Wierman

Portia Woods

Rachel Cramer

Coleman Henry, Sam Misa

Annika Jenson

Natalie Cha

Olivia McDonald

Jake Heinonen, Kevin Wang, Mitchell Stewart

Jessica Yu

Yusef Siddiqui

Parker Carlson

Nina Pejcinovic

Jadyn Sherry, Linnea Collett

Elijah Cirioli, James Nicholson

Sara Hardwick

Camryn Pettenger-Willey  
Anna Nielsen, Sophia Nielsen  
Hannah Budroe, Michelle Stevens  
Nathan Rice, Collin Smith  
Marlee Feltham, Rishima Mukherjee  
Dana Zaidan, Athena Lackides  
Jared Wieland  
Katie Bruun  
Sarathak Sameer-Asita  
Alexis Gessler  
Cade Holland, Cooper Berggren  
Taylor Edwards  
Viv Kiss, Yaya Kiss  
Courtney Slaughter, Thomas Johnson  
Camryn Lau, Isabella Scalise  
Rodayna Abdelhalim, Melody Garcia-Gonzales  
Drayton Nimz, Thomas Pierce  
Logan Rower, Byon Kea, Alex Wilson  
Ellie Garcia, Sabrina Smith  
Tucker Parrish

CREST- Jane Goodall Science Symposium

***Intel ISEF Observers***

Selected to participate at observers at Intel ISEF in Phoenix, Arizona

**Anna Nielsen and Sophia Nielsen**

**AND FINALLY, THE REALLY BIG WINNERS!!!!**

***Best Of Fair***

Advancing to compete at the International Intel ISEF in Phoenix, Arizona on May 12<sup>th</sup>-May 17<sup>th</sup>, 2019

**Pooja Jain & Neel Jain**

*A low-cost, 3-D printed autonomous WiFi tracking search drone to locate missing victims of natural disasters*

**Jessica Yu**

*A deep learning based drowning detection method for dynamic swimming pool environments*

**Nathan Tidball**

*Acrylate polymerization: formation of novel antimicrobial co-polymers*

**Rishima Mukherjee, Marlee Feltham**

*A 5th generation CAR T-cell: MicroRNA guided radiogenetics for T-Cell engineering*