

2019 Intel NWSE High School Awards

The Intel Northwest Science Expo, held Friday, April 12, 2019 at Portland State University, announces top winners in Oregon's state-level science research competition affiliated with the Intel International Science and Engineering Fair.

Intel NWSE includes both a middle school and high school division. The two divisions included 500 projects from 75 schools and organizations across the state. Two best of fair winners were chosen from each division.

- Long Ngo, 18, in grade 12 from Oregon Episcopal School won Best of Fair in Life Science with a project titled, "Direct Evolution of Antibody Fragments Targeting CD32a For Application In Immunotherapy To Eradicate HIV Latency".
- Advay Koranne, 17, in grade 11 from Catlin Gabel School won Best of Fair in Physical Science with a project titled, "Pseudo Random Number Generator using Sinai Billiards".

Both Best of Fair projects as well as four additional projects were chosen as Intel ISEF finalists. These finalists win an expenses-paid trip to Phoenix, Arizona, in May 2019, to compete at the international level, during the Society for Science and the Public organized event, the Intel International Science and Engineering Fair.

- Rohan Wagh, 16, in grade 11 from Sunset High School was selected as an Intel ISEF finalist with a project titled, "Designing an In-Situ Soil Conductivity Monitoring System for Precision Agriculture and Water Management".
- Lucas Braun, 15, in grade 10 from School of Science and Technology was selected as an Intel ISEF finalist with a project titled, "Implementing quantum dot qubits in optimized linear quantum computing architectures through evolutionary computational modeling".
- Himani Sood, 18, in grade 12 from Westview High School and Aditya Sood, 15, in grade 9 from Westview High School was selected as an Intel ISEF finalist with a project titled, "Reverse Testing Chemotherapies on Drosophila Models to Determine Protein-Kinase Pathways Affected by Hypertrophic Cardiomyopathy".
- Sam Hooley, 18, in grade 12 from Tillamook High School was selected as an Intel ISEF finalist with a project titled, "Historic Spatial Arrangement and Potential Fire and Disease Risk Reduction of Coastal Forests".

Joining the finalists from Intel NWSE will be the best projects from each of the seven regional fairs in the Northwest Science Expo System. The group of about 30 students, collectively referred to as Team OR, will represent the entire state at Intel ISEF against international competition in science, engineering and mathematics.

- Anne Deforge, 16, in grade 12 from Liberty High School qualified for Intel ISEF at Beaverton-Hillsboro Science Expo with a project titled, "Applied Mathematical Modeling of Continuous Dynamic Systems of Fluids in Pipe Flows".
- Divya Amirtharaj, 17, in grade 12 from Westview High School qualified for Intel ISEF at Beaverton-Hillsboro Science Expo with a project titled, "A Secure Implementation of Mendelian Randomization via Multi-Party Computation".
- Rohan Ahluwalia, 17, in grade 11 from Westview High School qualified for Intel ISEF at Beaverton-Hillsboro Science Expo with a project titled, "A Novel Optical Diagnostic Method for Non-Invasive Detection of Blood Glucose using Reverse Iontophoresis Modulation and a Personalized Neural Network".
- Lauren Li, 18, in grade 12 from Westview High School qualified for Intel ISEF at Beaverton-Hillsboro Science Expo with a project titled, "Tracing Cell Lineages from Single-Cell Data using Markov Affinity Estimation".
- Zheng Lian, 16, in grade 10 from Oregon Episcopal School qualified for Intel ISEF at Aardvark Science Exposition with a project titled, "A Study of the Speech-to-Song Illusion".

- Ryan Westcott, 17, in grade 11 from Oregon Episcopal School qualified for Intel ISEF at Aardvark Science Exposition with a project titled, "Development of a Fully Reusable and Autonomously Landing Suborbital Launch Vehicle".
- Sophie Chen, 16, in grade 11 from Oregon Episcopal School qualified for Intel ISEF at Aardvark Science Exposition with a project titled, "Gait analysis of *Periplaneta americana* cockroaches exposed to limonene".
- Emma Wetsel, 16, in grade 11 from Oregon Episcopal School qualified for Intel ISEF at Aardvark Science Exposition with a project titled, "The Role of Florescent Pigments in Protecting Zooxanthellae".
- Aneesh Gupta, 17, in grade 12 from Oregon Episcopal School qualified for Intel ISEF at Aardvark Science Exposition with a project titled, "Diagnosis of Various Diseases Using Neural Network Classification Based on Retinal Fundus Images".
- Alexa Montgomery, 17, in grade 12 from West Salem High School qualified for Intel ISEF at Central Western Oregon Science Expo with a project titled, "Implications for energy use via methanogenesis in Mars conditions".
- Sophia Hawley, 16, in grade 12 from West Salem High School qualified for Intel ISEF at Central Western Oregon Science Expo with a project titled, "An Analysis of Online Resources Cited By Vaccine Hesitancy Blogs".
- Pooja Jain, 18, in grade 12 from West Linn High School and Neel Jain from West Linn High School qualified for Intel ISEF at CREST-Jane Goodall Science Symposium with a project titled, "SkyHound: A Low-Cost 3D Printed Autonomous WiFi Tracking Search Drone to Locate Missing Victims of Natural Disasters".
- Jessica Yu, 17, in grade 12 from West Linn High School qualified for Intel ISEF at CREST-Jane Goodall Science Symposium with a project titled, "A Deep Learning Based Drowning Detection Method for Dynamic Swimming Pool Environments".
- Nathan Tidball from Wilsonville High School qualified for Intel ISEF at CREST-Jane Goodall Science Symposium with a project titled, "Acrylate Polymerization: Formation of UV Curable Antimicrobial Surfaces".
- Marlee Feltham, 18, in grade 12 from West Linn High School and Rishima Mukherjee, 17, in grade 12 from West Linn High School qualified for Intel ISEF at CREST-Jane Goodall Science Symposium with a project titled, "A 5th Generation CAR T-Cell: MicroRNA Guided Radiogenetics for T-Cell Engineering".
- Jacob Zhao, 16, in grade 10 from Bend Science Station qualified for Intel ISEF at COCC Regional Science Expo with a project titled, "Aluminum, Batteries, and Carbon".
- Ethan Vang, 16, in grade 11 from Gresham High School and Logan Hall, 16, in grade 11 from Gresham High School and Deepshay Ray, 17, in grade 11 from Gresham High School qualified for Intel ISEF at Gresham-Barlow Science Expo with a project titled, "Cubitus Viribus".
- Avi Gupta, 18, in grade 12 from Catlin Gabel School qualified for Intel ISEF at Gresham-Barlow Science Expo with a project titled, "Development of MicroCT Techniques for Quantifying Thrombus Formation in Cardiovascular Biomaterials".
- Arjun Jain, 16, in grade 11 from Catlin Gabel School qualified for Intel ISEF at Gresham-Barlow Science Expo with a project titled, "Bismuth-based Hybrid Nanomaterial for Cost-effective, Multi-functional Biomedical Imaging".
- Tyler Mapes, 16, in grade 11 from Franklin High School qualified for Intel ISEF at Portland Public Schools Science Expo with a project titled, "Calculus of a Rocket Launch".
- Natalie Wang, 16, in grade 11 from Lincoln High School qualified for Intel ISEF at Portland Public Schools Science Expo with a project titled, "Characterization of the role of catalases in hydroxyurea toxicity and their potential as novel chemotherapeutic targets".

Nearly 180 volunteer judges spent the day interviewing high school and middle school student researchers. The event is sponsored by Intel Corporation, Portland State University, and Genentech in addition to many individual contributions. Team OR is supported by NWSES sponsors McGeedy Family Foundation, Micro Systems Engineering and AbSci. Donations are still being accepted to help cover the group's travel expenses, lodging and registration fees. Please contact Stephanie Jones for more information.

Special Awards

Special Award	Award Sponsor	Title	Student List	Organization	Teacher
OSU General Scholarship	Oregon State University	LawnAI: A Low-Cost, Eco-Friendly, Smart Robotic Weeder for Large Green Spaces	Nisala Kalupahana	Glencoe High School	Chris Steiner
OSU General Scholarship	Oregon State University	A Novel Revolutionary Nonsurgical Treatment of Malignant Tumorigenesis	Jared Wieland	Wilsonville High School	Thomas Schuster
OSU General Scholarship	Oregon State University	Development of an Economically Viable, Safe, and Versatile Bioplastic	Katarina Pejcinovic	West Linn High School	Daniel Blankenship
University of Oregon Scholarships	University of Oregon	Gait analysis of <i>Periplaneta americana</i> cockroaches exposed to limonene	Sophie Chen	Oregon Episcopal School	Peter Langley
University of Oregon Scholarships	University of Oregon	Fibroblast Growth Factors on Neurogenesis within Developmental Zebrafish Retinas	Ethan Dinh	Oregon Episcopal School	Peter Langley
University of Oregon Scholarships	University of Oregon	Crow Vending Machine	Eden McCall	Sprague High School	Graham Dey
University of Oregon Scholarships	University of Oregon	Characterization of the role of catalases in hydroxyurea toxicity and their potential as novel chemotherapeutic targets	Natalie Wang	Lincoln High School	Nathan Watson
University of Oregon Scholarships	University of Oregon	Advancing the Science of the Treatment and Pathogenesis of Alzheimer's Disease; Assessing Fenugreek's Biofilm Disrupting Properties, using a <i>drosophila</i> model	Dana Zaidan	Wilsonville High School	Thomas Schuster

AbSci Future Innovators Internship Program	AbSci	Time Dependence of Acid Phosphatase and Chitinase Activity in Trichome Secretions of <i>Drosera capensis</i> in Response to Prey Capture	Zoe Strothkamp	Oregon Episcopal School	Peter Langley
AbSci Future Innovators Internship Program	AbSci	Acrylate Polymerization: Formation of UV Curable Antimicrobial Surfaces	Nathan Tidball	Wilsonville High School	Jim O'Connell
AbSci Future Innovators Internship Program	AbSci	Detecting the Sentiment in Social Media Posts Using Machine Learning Algorithms	Anwasha Mukherjee	Westview High School	Debbie Cooper
AbSci Future Innovators Internship Program	AbSci	Direct Evolution of Antibody Fragments Targeting CD32a For Application In Immunotherapy To Eradicate HIV Latency	Long Ngo	Oregon Episcopal School	Ryan Holland
AbSci Future Innovators Internship Program	AbSci	Implications for energy use via methanogenesis in Mars conditions	Alexa Montgomery	West Salem High School	Jonathan Williams
Outstanding Chemistry Project	American Chemical Society, Portland Section	Self Assembly of Copper Nanowires for Transparent Flexible Screens	Nayan Murthy	Catlin Gabel School	Joseph Grissom
Outstanding Project in an Atmospheric Science Exhibit	American Meteorological Society	The Aeronauts; Arial Particulate Composition Research in Salem Oregon	Sudha Basu, Madelyn Tallan, Charles Richardson	Sprague High School	Graham Dey

Outstanding Research in Psychology	American Psychological Association	A Study of the Speech-to-Song Illusion	Zheng Lian	Oregon Episcopal School	Bevin Daglen
Outstanding Project in Materials Science	ASM International Foundation	Hydrogels: A Possible Alternative to Artificial Synovial Fluid	Amelia Lui	Oregon Episcopal School	Bevin Daglen
Outstanding Geoscience Project	Association Of Women Geoscientists	Channel Morphology and Fish Use	Celeste Stout	Tillamook High School	Clair Thomas
Biophysics Award	Biophysical Society	Creating a Device to Improve the Measurement of Human Range of Motion	Silas Waxter	Tillamook High School	Clair Thomas
IEEE Special Awards	IEEE Oregon	Implementing quantum dot qubits in optimized linear quantum computing architectures through evolutionary computational modeling	Lucas Braun	School of Science and Technology	Melissa Shell
IEEE Special Awards	IEEE Oregon	A Novel Optical Diagnostic Method for Non-Invasive Detection of Blood Glucose using Reverse Iontophoresis Modulation and a Personalized Neural Network	Rohan Ahluwalia	Westview High School	Debbie Cooper
IEEE Special Awards	IEEE Oregon	Alzheimer's Disease Classification Using Convolutional Neural Network and ADNI Dataset	Zhiyin Lin	Oregon Episcopal School	Bevin Daglen
IEEE Special Awards	IEEE Oregon	SkyHound: A Low-Cost 3D Printed Autonomous WiFi Tracking Search Drone to Locate Missing Victims of Natural Disasters	Pooja Jain, Neel Jain	West Linn High School	Michael George

IEEE Special Awards	IEEE Oregon	A Cost-effective Headband Featuring a Real-time EEG Data Classifier for Automated Seizure Detection and Monitoring in Developing Countries	Pratik Vangal	Sunset High School	Korin Riske
Intel Excellence in Computer Science	Intel Corporation	Pseudo Random Number Generator using Sinai Billiards	Advay Koranne	Catlin Gabel School	Joseph Grissom
Outstanding Chemistry Related Project	Iota Sigma Pi	Characterization of the role of catalases in hydroxyurea toxicity and their potential as novel chemotherapeutic targets	Natalie Wang	Lincoln High School	Nathan Watson
Outstanding Aquatic Related Environmental Science Project	Lake Oswego Corporation	Identifying the causal structure and correlations between global climate factors and algal blooms	Rupert Li	Jesuit High School	Lara Shamieh
Mu Alpha Theta Award	Mu Alpha Theta	Combinatorial and Geometrical Interpretation of Polynomial Coefficients	Timothy Sayers	International School of Beaverton	Jaimie Yee
NASA Earth System Science Award	NASA	Identifying the causal structure and correlations between global climate factors and algal blooms	Rupert Li	Jesuit High School	Lara Shamieh
NOAAs Taking the Pulse of the Planet	National Oceanic and Atmospheric Administration	The Role of Florescent Pigments in Protecting Zooxanthellae	Emma Wetsel	Oregon Episcopal School	Peter Langley
Naval Excellence in Science and Engineering Award	Office of Naval Research, US Navy and Marine Corps	LawnAI: A Low-Cost, Eco-Friendly, Smart Robotic Weeder for Large Green Spaces	Nisala Kalupahana	Glencoe High School	Chris Steiner

Naval Excellence in Science and Engineering Award	Office of Naval Research, US Navy and Marine Corps	Using drones with near infra red cameras to locate populations and determine densities of Olympic Oysters (<i>Ostrea lurida</i>)	Malachi Thorne	Tillamook High School	Clair Thomas
Naval Excellence in Science and Engineering Award	Office of Naval Research, US Navy and Marine Corps	Emergency Hemorrhage Foam	Cassandra Zaiser	Trinity Lutheran School	Thomas Stueve
Naval Excellence in Science and Engineering Award	Office of Naval Research, US Navy and Marine Corps		Quinn Bennett	Delphian School	Diego Martinez
Tom Owen Award for Excellence in Statistics	Oregon Chapter of the American Statistical Association	Cyanobacteria as a Biofertilizer: Testing the Effects of <i>Anabaena</i> on Plant Growth and Performance	Camryn Pettenger-Willey	Wilsonville High School	Thomas Schuster
Tom Owen Award for Excellence in Statistics	Oregon Chapter of the American Statistical Association	A Study of the Speech-to-Song Illusion	Zheng Lian	Oregon Episcopal School	Bevin Daglen
Tom Owen Award for Excellence in Statistics	Oregon Chapter of the American Statistical Association	Glacier melting risk: Predictive model of glacial melting by correlating timeseries analysis of geoglacial data with fractal-analysis of remote-sensed images	Mithra Karamchedu	Jesuit High School	Lara Shamieh
Tom Owen Honorable Mention	Oregon Chapter of the American Statistical Association	Harvester ant (<i>Pogonomyrmex barbatus</i>) gut microbiome diversity after exposure to Pyrethrin and Sodium Tetraborate	Rachel Cramer	Wilsonville High School	Jay Schauer
Tom Owen Honorable Mention	Oregon Chapter of the American Statistical Association	The True Effects of Muck Digesters	Isabella Huerta	Bend Science Station	David Bermudez

Tom Owen Honorable Mention	Oregon Chapter of the American Statistical Association	Cell Phones a TetraVexing Problem?	Ruby Sparks	Bend Science Station	David Bermudez
Tom Owen Honorable Mention	Oregon Chapter of the American Statistical Association	Gas Chromatography Evidence for N ₂ O Accumulation: Modeling Temporal Dynamics along the Pacific NW Coast	Lila Schweinfurth	Oregon Episcopal School	Bevin Daglen
Tom Owen Honorable Mention	Oregon Chapter of the American Statistical Association	A Cost-effective Headband Featuring a Real-time EEG Data Classifier for Automated Seizure Detection and Monitoring in Developing Countries	Pratik Vangal	Sunset High School	Korin Riske
Tom Owen Honorable Mention	Oregon Chapter of the American Statistical Association	Identifying the causal structure and correlations between global climate factors and algal blooms	Rupert Li	Jesuit High School	Lara Shamieh
Award for Excellence in Scientific Research in Environmental Health	Oregon Environmental Health Association	Making an Alternative to Activated Charcoal by Reusing Spent Coffee Grounds to Filter Water	Maisha Hoque, Ragheeb Hoque	Oregon Islamic Academy	Juwairyah Syed
Outstanding Natural Resources Science Project	Pacific NW Research Station, USDA Forest Service	Remediation of Fire Disturbances through Supplementation of Symbiotic Soil Microbe frankia alni in Soils throughout the Pacific Northwest	Taylor Edwards	Wilsonville High School	Thomas Schuster
Outstanding Applied or Practical Chemistry Project by a Junior or Senior	Portland Industrial Chemists' Association/American Chemical Society	Time Dependence of Acid Phosphatase and Chitinase Activity in Trichome Secretions of Drosera capensis in Response to Prey Capture	Zoe Strothkamp	Oregon Episcopal School	Peter Langley
Sustainable Development Award	Ricoh Corporation	The Reuse of Vegetable Oils to Aid	Xinyu Zhou	Oregon Episcopal School	Peter Langley

		Growth Rate of <i>Pleurotus ostreatus</i>			
Oceans Expo Nomination	SAGE and the Oregon Coast Aquarium	The Role of Florescent Pigments in Protecting Zooxanthellae	Emma Wetsel	Oregon Episcopal School	Peter Langley
Oceans Expo Nomination	SAGE and the Oregon Coast Aquarium	Identifying the causal structure and correlations between global climate factors and algal blooms	Rupert Li	Jesuit High School	Lara Shamieh
Oceans Expo Nomination	SAGE and the Oregon Coast Aquarium	Effect of Lead Oxide Nano Particles on Toxicity and Metabolic Rate Prawan, <i>Macrobrachium rosenbergii</i> postlarvae	Dev-Rishi Udata	Jesuit High School	Lara Shamieh
Oceans Expo Nomination	SAGE and the Oregon Coast Aquarium	A Comparison of Marine Microplastic Distribution, Abundance and Type Across Oregon Coast Beaches	Harrison Edington, Ezra Fischler, Evan Owens	Northwest Academy	Molly Sultany
Outstanding Project in In Vitro Biology	Society for in Vitro Biology	A Novel Revolutionary Nonsurgical Treatment of Malignant Tumorigenesis	Jared Wieland	Wilsonville High School	Thomas Schuster
Outstanding Air Quality Project	Southwest Clean Air Agency	Modeling Hurricane Damage and Carbon Dioxide	Hugh Shanno	Oregon Episcopal School	Peter Langley
U.S. Air Force Outstanding Project	U.S. Air Force	Crow Vending Machine	Eden McCall	Sprague High School	Graham Dey
U.S. Air Force Outstanding Project	U.S. Air Force	SkyHound: A Low-Cost 3D Printed Autonomous WiFi Tracking Search Drone to Locate Missing Victims of Natural Disasters	Pooja Jain, Neel Jain	West Linn High School	Michael George

U.S. Air Force Outstanding Project	U.S. Air Force	Using Machine Learning To Classify CD8 T-Cells in Pancreas Ductal Adenocarcinoma From Multiplex Immunohistochemistry Image Cytometry	Yusef Siddiqui	West Linn High School	Gabe Nagler
U.S. Air Force Outstanding Project	U.S. Air Force	E-J.E.T.: Electric Jet Efficiency and power Test	Joaquin Martinez	Delphian School	Diego Martinez
U.S. Air Force Outstanding Project	U.S. Air Force	Multi-Use Eco-Friendly Gutter System	Paige Hayward	International School of Beaverton	Jaimie Yee
Outstanding Use of the International System of Units	U.S. Metric Association	Gas Chromatography Evidence for N2O Accumulation: Modeling Temporal Dynamics along the Pacific NW Coast	Lila Schweinfurth	Oregon Episcopal School	Bevin Daglen
U.S. Regional Stockholm Junior Water Prize	Water Environment Federation	Incorporating Aquaponics and Aeroponics Into A Cohesive Agricultural System	Logan Rower, Alexander Wilson, Byon Kea	West Linn High School	James Hartmann
U.S. Regional Stockholm Junior Water Prize	Water Environment Federation	Designing an In-Situ Soil Conductivity Monitoring System for Precision Agriculture and Water Management	Rohan Wagh	Sunset High School	Korin Riske
Outstanding Project by an 11th Grade Student	Yale University Science and Engineering Association	Detecting the Sentiment in Social Media Posts Using Machine Learning Algorithms	Anwasha Mukherjee	Westview High School	Debbie Cooper

Category Awards

Category	Place	Title	Student List	Organization	Teacher
Animal Sciences	First Place	Anti-Mallerian hormone is a potential regulator	Tyler Durham	Sunset High School	Korin Riske

		of hippocampal function			
Animal Sciences	Second Place	Investigating the Correlation Between Noise Pollution Produced by a Continuously Operating Tidal Turbine and Impaired Embryonic Development of <i>Mytilus galloprovincialis</i>	Hayden Wierman	West Linn High School	Jon Isensee
Animal Sciences	Third Place	Husbanding the <i>Limulus Polyphemus</i> and Determining a Proper Diet to Increase Amebocyte Production	Makayla Bruce, Justin Bruce	Wilsonville High School	Jay Schauer
Behavioral and Social Science	First Place		Anushka Naiknaware	Lake Oswego High School	Daniel Kumprey
Behavioral and Social Science	Second Place	Evaluating the association between Google search terms and deliberate shooting incidence in the United States from 2014 to 2018	Minyan Chen	Oregon Episcopal School	Bevin Daglen
Behavioral and Social Science	Third Place	Crow Vending Machine	Eden McCall	Sprague High School	Graham Dey
Behavioral and Social Science	Third Place	A Study of the Speech-to-Song Illusion	Zheng Lian	Oregon Episcopal School	Bevin Daglen

Biochemistry	First Place	Time Dependence of Acid Phosphatase and Chitinase Activity in Trichome Secretions of <i>Drosera capensis</i> in Response to Prey Capture	Zoe Strothkamp	Oregon Episcopal School	Peter Langley
Biochemistry	Second Place	Old Staple, New Superfood: Assessing the Levels of Antioxidants in Different Potato Varieties	Mimi Papathanaspoulos	Oregon Episcopal School	Chad Gilton
Biochemistry	Third Place	Fibroblast Growth Factors on Neurogenesis within Developmental Zebrafish Retinas	Ethan Dinh	Oregon Episcopal School	Peter Langley
Cellular and Molecular Biology	First Place	Direct Evolution of Antibody Fragments Targeting CD32a For Application In Immunotherapy To Eradicate HIV Latency	Long Ngo	Oregon Episcopal School	Ryan Holland
Cellular and Molecular Biology	Second Place	Characterization of the role of catalases in hydroxyurea toxicity and their potential as novel chemotherapeutic targets	Natalie Wang	Lincoln High School	Nathan Watson
Cellular and Molecular Biology	Third Place	The Effect of Co-Culturing of MCF-7 Breast Cancer Cells and 3T3 Fibroblasts with and without	Maya Khalife-Hamdan	Oregon Episcopal School	Bevin Daglen

		Cancer Treating Drug, Tamoxifen			
Chemistry	First Place	Acrylate Polymerization: Formation of UV Curable Antimicrobial Surfaces	Nathan Tidball	Wilsonville High School	Jim O'Connell
Chemistry	Second Place	Development of an Economically Viable, Safe, and Versatile Bioplastic	Katarina Pejcinovic	West Linn High School	Daniel Blankenship
Chemistry	Third Place	Improving Water Quality of Areas Affected by Harmful Algae Blooms Through Reactions with Guanidinium Groups in Saxitoxins	Caitlin McCabe	West Linn High School	Shawn McDevitt
Chemistry	Honorable Mention	Gas Chromatography Evidence for N ₂ O Accumulation: Modeling Temporal Dynamics along the Pacific NW Coast	Lila Schweinfurth	Oregon Episcopal School	Bevin Daglen
Computer Science and Robotics	First Place	Pseudo Random Number Generator using Sinai Billiards	Advay Koranne	Catlin Gabel School	Joseph Grissom
Computer Science and Robotics	Second Place	Developing a Three-Dimensional Thermal Mapping Platform on an AR App for UAVs to Pinpoint Survivors During Natural Disasters	Hudson Hale	Oregon Episcopal School	Ryan Holland

Computer Science and Robotics	Third Place	Using Machine Learning Algorithms to Identify Genes from DNA Sequences	Ronak Guilani	School of Science and Technology	Melissa Shell
Computer Science and Robotics	Third Place	Diagnosis and Classification of Pigmented Skin Lesions Including Skin Cancer and Other Skin Conditions using Convolutional Neural Networks	Haadiya Ansari	Summit Learning Charter	Kamran Ansari
Energy and Environmental Engineering	First Place	Designing an In-Situ Soil Conductivity Monitoring System for Precision Agriculture and Water Management	Rohan Wagh	Sunset High School	Korin Riske
Energy and Environmental Engineering	Second Place	Developing a Rain Barrel System Utilizing Compost Energy to Heat Household Water	Audrey Gingras	Oregon Episcopal School	Peter Langley
Energy and Environmental Engineering	Third Place	Highway Wind Energy	Adaela Shearer	West Linn High School	Jonathan Davies
Energy and Environmental Engineering	Honorable Mention	Incorporating Aquaponics and Aeroponics Into A Cohesive Agricultural System	Logan Rower, Alexander Wilson, Byron Kea	West Linn High School	James Hartmann
Energy and Environmental Engineering	Honorable Mention	Sucks to Suck	Gigi Schweitzer, Wally Milner	West Linn High School	James Hartmann

Engineering: Bioengineering and Materials	First Place	Detecting the Sentiment in Social Media Posts Using Machine Learning Algorithms	Anwasha Mukherjee	Westview High School	Debbie Cooper
Engineering: Bioengineering and Materials	Second Place	A Cost-effective Headband Featuring a Real-time EEG Data Classifier for Automated Seizure Detection and Monitoring in Developing Countries	Pratik Vangal	Sunset High School	Korin Riske
Engineering: Bioengineering and Materials	Third Place	An Approach to Developing a Biodegradable Water Bottle	Jadyn Sherry, Linnea Collett	Wilsonville High School	Sophie Kirscht
Engineering: Bioengineering and Materials	Honorable Mention	Non-Invasively Measuring Blood Glucose Levels in Type One Diabetics With Near-Infrared Spectroscopy	Elijah Cirioli, James Nicholson	West Linn High School	Jon Isensee
Engineering: Electrical and Mechanical	First Place	SkyHound: A Low-Cost 3D Printed Autonomous WiFi Tracking Search Drone to Locate Missing Victims of Natural Disasters	Pooja Jain, Neel Jain	West Linn High School	Michael George
Engineering: Electrical and Mechanical	Second Place	LawnAI: A Low-Cost, Eco-Friendly, Smart Robotic Weeder for Large Green Spaces	Nisala Kalupahana	Glencoe High School	Chris Steiner
Engineering: Electrical and Mechanical	Third Place	A Novel Approach to Refrigeration in Vaccine	Sebastian Marin-Quiros	Lakeridge High School	Luis Marin

		Transportation through Thermally Actuated Valves			
Environmental and Earth Sciences	First Place	Effect of Lead Oxide Nano Particles on Toxicity and Metabolic Rate Prawan, Macrobrachium rosenbergii postlarvae	Dev-Rishi Udata	Jesuit High School	Lara Shamieh
Environmental and Earth Sciences	Second Place	Identifying the causal structure and correlations between global climate factors and algal blooms	Rupert Li	Jesuit High School	Lara Shamieh
Environmental and Earth Sciences	Third Place	Glacier melting risk: Predictive model of glacial melting by correlating timeseries analysis of geoglacial data with fractal-analysis of remote-sensed images	Mithra Karamchedu	Jesuit High School	Lara Shamieh
Environmental and Earth Sciences	Honorable Mention	The Effect of Beaver Dams on Macroinvertebrate Populations	Anna Nielsen, Sophia Nielsen	West Linn High School	James Hartmann
Mathematical Sciences	First Place	Applied Mathematical Modeling of Continuous Dynamic Systems of Fluids in Pipe Flows	Anne Deforge	Liberty High School	Steffan Ledgerwood
Mathematical Sciences	Second Place	Using Python To Simulate and Analyze 'Qwirkle'	Vivek Mittal-Henkle	Oregon Episcopal School	Owen Gross

Mathematical Sciences	Third Place	Calculus of a Rocket Launch	Tyler Mapes	Franklin High School	Merritt Sansom
Medicine and Health Sciences	First Place	A Novel Optical Diagnostic Method for Non-Invasive Detection of Blood Glucose using Reverse Iontophoresis Modulation and a Personalized Neural Network	Rohan Ahluwalia	Westview High School	Debbie Cooper
Medicine and Health Sciences	Second Place	Reverse Testing Chemotherapies on Drosophila Models to Determine Protein-Kinase Pathways Affected by Hypertrophic Cardiomyopathy	Himani Sood, Aditya Sood	Westview High School	Debbie Cooper
Medicine and Health Sciences	Third Place	A 5th Generation CAR T-Cell: MicroRNA Guided Radiogenetics for T-Cell Engineering	Marlee Feltham, Rishima Mukherjee	West Linn High School	Nancy Monson
Medicine and Health Sciences	Honorable Mention	The Strength of a Chicken Ligaments When Pulled at Different Strengths and Angles	Madison Carson	Oregon Episcopal School	Robert Orr
Microbiology	First Place	Implications for energy use via methanogenesis in Mars conditions	Alexa Montgomery	West Salem High School	Jonathan Williams

Microbiology	Second Place	Harvester ant (Pogonomyrmex barbatus) gut microbiome diversity after exposure to Pyrethrin and Sodium Tetraborate	Rachel Cramer	Wilsonville High School	Jay Schauer
Microbiology	Third Place	Mock Martian Atmosphere and Its Affects on Algae	Kara Gaiser	Oregon Episcopal School	Chad Gilton
Physics and Astronomy	First Place	Implementing quantum dot qubits in optimized linear quantum computing architectures through evolutionary computational modeling	Lucas Braun	School of Science and Technology	Melissa Shell
Physics and Astronomy	Second Place	Light Curve Analysis of Exoplanets of WASP3	Sofia Marin-Quiros	Lakeridge High School	Luis Marin
Physics and Astronomy	Third Place	Shapes of Sound Holes and Their Effect on Timbre of a Vibrating String	Nate Strothkamp	Oregon Episcopal School	Owen Gross
Plant Sciences	First Place	Historic Spatial Arrangement and Potential Fire and Disease Risk Reduction of Coastal Forests	Sam Hooley	Tillamook High School	Clair Thomas
Plant Sciences	Second Place	Cyanobacteria as a Biofertilizer: Testing the Effects of Anabaena on Plant Growth and Performance	Camryn Pettenger-Willey	Wilsonville High School	Thomas Schuster

