

Symposium 2019



August 16

The 2019 ASE Symposium is
presented by:



With additional support by:



And hosted by:



2019 ASE interns at the Midsummer Conference at Oregon State University

Public Safety: 503-943-7161 | ASE Staff: (813) 778-1927

2019 ASE SYMPOSIUM SCHEDULE

- 8:30 AM** **Registration Opens**
Clark Library Patio
- 9:15 AM** **Opening Remarks**
Buckley Center Auditorium
Introduction: **Mrs. Libby Van Vleet**
ASE Program Director, Saturday Academy
Welcome Address: **Dr. Herbert Medina**
*Dean of the College of Arts and Sciences &
Professor of Mathematics, University of Portland*
Keynote Address: **Ms. Sarah Laiwala**
*Senior Director, Product Management &
Data Science, Expedia Group*
- 10:15 AM** **Oral Presentations** – Session #1
Franz Hall
- 11:30 AM** **Oral Presentations** – Session #2
Franz Hall
- 12:30 PM** **Lunch**
Pilot House
- 1:30 PM** **Recognition Ceremony**
Buckley Center Auditorium
- 2:15 PM** **Oral Presentations** – Session #3
Franz Hall
- 3:30 PM** **Oral Presentations** – Session #4
Franz Hall
- 4:45 PM** **Closing Remarks**
Bauccio Dining Room
- 5:00 PM** **Poster Sessions**
Bauccio Dining Room
- 6:00 PM** **Symposium Ends**

OUR KEYNOTE SPEAKER



Sarah Laiwala

Sarah is a life-long learner, leader, innovator, volunteer, and mother. She has over 15 years of professional experience in technology. She and her teams have launched consumer-facing products that drive billions of dollars and impact millions of consumers worldwide.

Currently, Sarah is a Sr. Director for post-booking experiences at Expedia Group. Most recently, she was at The Walt Disney Company, where she managed the PhotoPass P&L, led the Digital Innovation team, and built the virtual assistant app and website platforms for Parks and Resorts. Prior to that, Sarah was at Amazon growing the Shopping App for Android.

She earned her M.S. Software Engineering and Development Management from Carnegie Mellon University, and also received the Dean's Return on Education Award in 2010. In addition to her achievements professionally, Sarah received the Presidential Voluntary Service awards for two consecutive years for her exemplary work with Aga Khan Education Services in Tajikistan and Aga Khan Education Board in the USA.

Please share your feedback!

Complete our survey online at <https://tinyurl.com/ASEEVALS> or use this QR code.:



MENTOR YEARS OF SERVICE

27 Years

Dr. Paul Tratnyek,
*Oregon Health & Science
University*

23 Years

Dr. Skip Rochefort,
Oregon State University

21 Years

Dr. Steven Strauss,
Oregon State University

19 Years

Ms. Andrea Kelsey,
Bureau of Land Management

18 Years

Dr. Jacob Raber,
*Oregon Health & Science
University*

17 Years

Mr. Andy Bryant, *NOAA
National Weather Service*

14 Years

Dr. Margaret Burnett,
Oregon State University

13 Years

Dr. Wu-chang Feng,
Portland State University
Dr. Wu-chi Feng,
Portland State University

12 Years

Mrs. Christine Lindner,
*Bonneville Power
Administration*
Dr. Philip Todd,
Saltire Software

11 Years

Dr. Martin Erwig,
Oregon State University
Dr. Qingyue Ling,
Food Innovation Center
Mr. Darrell Teegarden,
Mentor, a Siemens Business
Dr. Eugene Zhang,
Oregon State University

10 Years

Dr. Ganti Murthy,
Oregon State University
Dr. Mas Subramanian,
Oregon State University

9 Years

Dr. James Brau,
University of Oregon
Ms. Dany Madden,
IBM Corporation
Dr. Larry Sherman,
*Oregon National Primate
Research Center (OHSU)*

8 Years

Dr. Melinda Krahenbuhl,
Reed College
Dr. Hiroyuki Nakai,
*Oregon Health & Science
University*
Dr. Tamara Phillips, *VA
Portland Health Care System*
Mr. Steve Reinhart, *HP, Inc.*
Dr. Christof Teuscher,
Portland State University

7 Years

Mr. Ken Ballou,
*Bonneville Power
Administration*
Mr. David O'Claire,
*Bonneville Power
Administration*
Ms. Deanna Phillips,
*Bonneville Power
Administration*
Dr. Cheryl Reed-Williams,
*VA Portland Health Care
System*



Hiral Patel with mentors Paige Bristol Sedgwick and Martha Rae Brasted-Maki in the Skip Rochefort lab on the campus of OSU.

MENTOR YEARS OF SERVICE

6 Years

Dr. Summer Gibbs, *Oregon Health & Science University*
 Ms. Ashley Hoch, *Yakima Products Inc.*
 Dr. Louis Kuo, *Lewis & Clark College*
 Dr. Charles Meshul, *VA Portland Health Care System*
 Dr. Jeff Nason, *Oregon State University*

5 Years

Dr. Stephanie Bollmann, *Oregon State University*
 Dr. Nora Gray, *Oregon Health & Science University*
 Ms. Cindy Moore, *VA Portland Health Care System*
 Ms. Kari Nichols, *Mead & Hunt, Inc.*
 Ms. Jennifer Polivka, *Nike, Inc.*
 Mr. Sam Swartley, *Vernier Software & Technology*

4 Years

Ms. Gabriela Alvarez, *Bonneville Power Administration*
 Dr. Ravi Balasubramanian, *Oregon State University*
 Mr. Craig Beebe, *Mentor, a Siemens Business*
 Mr. Evan Firsick, *VA Portland Health Care System*
 Mr. Michael Henderson, *Bonneville Power Administration*
 Mr. Andy Kyler, *Care Partners*
 Ms. Christine Locke, *VA Portland Health Care System*
 Dr. Carmem Pfeifer, *Oregon Health & Science University*
 Mr. Mark Tucker, *Bonneville Power Administration*
 Ms. Tracy Villarreal, *Care Partners*
 Mr. Matthew Weaver, *Bonneville Power Administration*
 Dr. Yué Zhang, *Oregon State University*

3 Years

Dr. Fatima Banine, *Oregon National Primate Research Center (OHSU)*
 Mr. Ryan Buss, *Bonneville Power Administration*
 Dr. Ana Fugolin, *Oregon Health & Science University*
 Ms. Ingrid Hagen-Keith, *Nike, Inc.*
 Mr. Frederick Harris, *Portland General Electric*
 Dr. Geoffrey Hollinger, *Oregon State University*
 Dr. Claudia Jaffe, *Lumencor, Inc.*
 Dr. Iain Johnson, *Lumencor, Inc.*
 Mr. Jesse Korber, *Oregon Health & Science University*
 Ms. Melissa Lum, *Nike, Inc.*
 Dr. Theresa McCormick, *Portland State University*
 Ms. Barbara McGrath, *Nike, Inc.*
 Mr. John Mootz, *VA Portland Health Care System*
 Ms. Shannon O'Sullivan, *Oregon National Primate Research Center (OHSU)*
 Dr. Matt Shinderman, *OSU Cascades Campus*
 Dr. Tatiana Shnitko, *Oregon National Primate Research Center (OHSU)*
 Mr. Tom Smith, *Vernier Software & Technology*
 Mr. Stephen Thompson, *Bonneville Power Administration*
 Mrs. Nikki Walter, *Oregon National Primate Research Center (OHSU)*

2 Years

Dr. Kei Adachi, *Oregon Health & Science University*
 Mr. Danny Aley, *Saltire Software*
 Mr. Andrew Anderson, *Oregon State University*
 Dr. Caitlin Bowman, *University of Oregon*
 Mr. Dave Calhoun, *HP, Inc.*
 Dr. Calvin Davis, *HP, Inc.*
 Mr. Derrick Draper, *Black & Veatch Corporation*
 Mr. Brian Easton, *HP, Inc.*
 Dr. Pete Eschbach, *Oregon State University*
 Mr. Adam Farnsworth, *Mead & Hunt, Inc.*
 Mr. Eric Faucette, *Novus Labs*
 Mr. Marty Flansburg, *Bonneville Power Administration*
 Mr. Rob Gamolo, *NWEA*
 Ms. Claudia Hilderbrand, *Oregon State University*
 Mr. David Hopper, *Vernier Software & Technology*
 Ms. Kristin Jones, *Black & Veatch Corporation*
 Mr. John Jorgensen, *Food Innovation Center*
 Dr. Jovana Kovacevic, *Food Innovation Center*
 Mr. Ben Levine, *Mentor, a Siemens Business*
 Dr. Durga Mahapatra, *Oregon State University*
 Mr. Christopher Martin, *HP, Inc. - Vancouver*
 Mr. Patrick McKinney, *Yakima Products Inc.*
 Mr. Michael Murphy, *Nike, Inc.*
 Ms. Melissa Patterson, *AbSci*
 Ms. Ania Pavitt, *Oregon Health & Science University*
 Dr. Carrie Phillipi, *Doernbecher Children's Hospital (OHSU)*
 Dr. Joseph Quinn, *Oregon Health & Science University*
 Ms. Lynda Racicot, *Bonneville Power Administration*

MENTOR YEARS OF SERVICE

2 Years

Dr. Stephen Ramsey,
Oregon State University
Dr. Anita Sarma,
Oregon State University
Ms. Teresa Sawyer,
Oregon State University
Ms. Vidya Selvamani, *Vernier Software & Technology*
Dr. Lyndsey Shorey,
Oregon National Primate Research Center (OHSU)
Dr. Bethany Sloane,
Doernbecher Children's Hospital (OHSU)
Mr. Bob Thayme,
Mead & Hunt, Inc.
Dr. Stephen Tufte,
Lewis & Clark College
Mr. Walt Woods,
Portland State University
Dr. Dasa Zeithamova-Demircan,
University of Oregon
Mr. Jinta Zheng,
Oregon State University

1 Year

Ms. Stefania Ashby,
University of Oregon
Ms. Divya Bajaj,
Oregon State University
Mr. Ken Barlow, *AbSci*
Dr. Connor Barth, *Oregon Health & Science University*
Mr. Andy Bazukin, *Bonneville Power Administration*
Mr. Avik Bhattacharjee,
Portland State University
Mr. Grant Blythe,
Collins Aerospace
Ms. Hailey Bond,
Oregon State University
Mr. Justin Casebier,
Oregon State University
Ms. Lisa Casey, *Bonneville Power Administration*
Mr. Frank Chappell,
Whitman Partners
Ms. Megan Cleary,
Children's Cancer Therapy Development Institute
Mr. Elliott Clement,
Oregon State University

Ms. Olivia Czubarow, *HP, Inc.*
Mr. Michael Davies, *Oregon National Primate Research Center (OHSU)*
Dr. Laurie Dizney,
University of Portland
Mr. Brett Duell,
Oregon State University
Ms. Carrie Edwards,
Mentor, a Siemens Business
Ms. Toria Ellis, *Reed College*
Ms. Lea Frank,
University of Oregon
Mr. Mark Freeman, *HP, Inc.*
Mr. Ricardo Garcia,
Portland General Electric
Mr. Michael Gordon,
Oregon State University
Mr. Siddesh Gowdar,
McAfee LLC
Mr. Keith Greeney, *Summit Wireless Technologies, Inc.*
Mr. Anandan Hariharan, *NWEA*
Mr. Kevin Hung,
Oregon State University
Mr. Nykell Hunter,
Oregon State University
Mr. Benjamin Hutt,
Collins Aerospace
Mr. Ryan Kapsar, *Summit Wireless Technologies, Inc.*
Mr. Kishore Kollu,
Mentor, a Siemens Business
Ms. Destine Krenik, *Oregon Health & Science University*
Mr. Prashant Kumar,
Oregon State University
Ms. Heather Laslo, *Bonneville Power Administration*
Mr. Daniel Leussler, *Oregon Health & Science University*
Mr. Victor Li, *HP, Inc.*
Ms. Grace Lin,
Oregon State University
Dr. John Lipor,
Portland State University
Dr. Jennifer Loftis, *VA Portland Health Care System*
Mr. Vivek Malik,
Portland State University
Mr. Perrin Mao, *HP, Inc.*
Mr. Seth McCammon,
Oregon State University

Mr. Campbell McColley,
Oregon State University
Mr. Matthew Millard, *Oregon Health & Science University*
Mr. Pushon Mukherjee,
HP, Inc. - Vancouver
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Oregon State University
Mr. Graham O'Brien, *Oregon Health & Science University*
Ms. Corrinne Oedekerck,
OSU Cascades Campus
Ms. Annika Oetken, *HP, Inc.*
Ms. Diana Popp, *OSU Cascades Campus*
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Ms. Paige Sedgwick,
Oregon State University
Mr. David Stankovic, *Oregon Health & Science University*
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Mead & Hunt, Inc.
Mr. Mick Tarsel,
IBM Corporation
Dr. Laura Villasana, *Oregon Health & Science University*
Mr. Dale Wacker, *McAfee LLC*
Mr. Michael Waxman,
HP, Inc. - Vancouver
Dr. Meagan Wengrove,
Oregon State University

INTERNS BY MENTOR ORGANIZATION

AbSci

Anastasiya Kashyrna

Black & Veatch Corporation

Andrew Li

Bonneville Power Administration

Lucas Carter

Vincent Hsu

Jerry Huang

Brian Loop

Lee Nickelson

Elizabeth Zimmerman

Bureau of Land Management

Xavier Tacker

Care Partners

Anvitha Bavineni

Children's Cancer Therapy Development Institute

Maddie Moradi

Collins Aerospace

Catherine Lee

Max Lin

Doernbecher Children's Hospital (OHSU)

Shruthi Ananth

Food Innovation Center

Caroline Cook

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Clara Szalay

HP Inc.

Ellie Hintzman

Saha Kumar

Valerie Lending

Connor Moyce

HP Inc. – Vancouver

Kai Gutierrez

Josephine Lai

IBM Corporation

Ethan Hansen

Rye Scholin

Lewis & Clark College

Sam Glassman

Lynn Nguyen

Lumencor, Inc.

Corinne Hare

McAfee LLC

Kai Morita-Mcvey

Mead & Hunt, Inc.

Luis Contreras

Mentor, a Siemens Business

Thomas Burg

Advay Koranne

Jason Shi

Nike, Inc.

Tony Chen

Leif Gregory

Fouad Omrane

NOAA National Weather Service

Clea Thomas

Novus Labs

Umair Rahim

NWEA

Ethan Wang

Oregon Health & Science University (OHSU)

Elin Bertheau

Cristin Brethower

Sophia Chang

Jane Chen

Amelia Costello

Shirley Lam

Abani Neferkara

Nick Payton

Nikhil Samudrala

Kristina Thach

Kris Tran

Jared Wieland

Neha Yeturu

Oregon National Primate Research Center (OHSU)

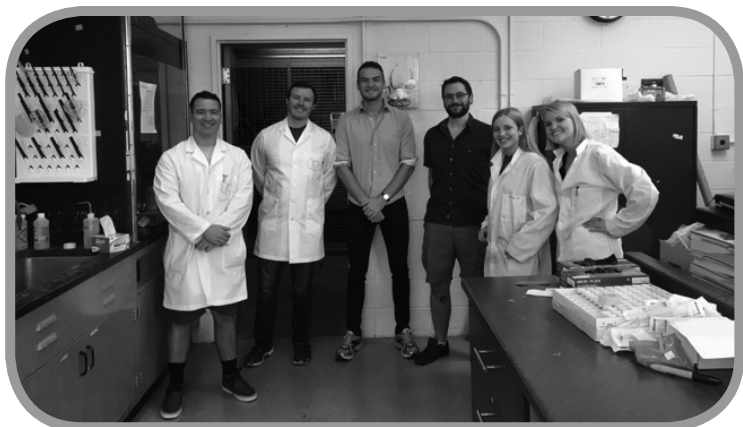
Tim Crimmins

Lauren Haines

Natalie Wang



Nikhil Samudrala and Sree Neha Yeturu with mentor Dr. Laura Villasana at OHSU.



Dara Coon with mentor Claire Niemet in the lab of Skip Rochefort at OSU.

Oregon State University

Audrey Au
Lily Bakkom
Kevin Chang
Dara Coon
Audrey Davis
Veronica Flores
Inessa Garrey
Eddie Hu
Ellis Kline
Suraj Kulkarni
Chase Lending
Jake MacLaughlin-Johnson
Caleb Mathews
Natalia Morales
Hiral Patel
Tulsi Patel
Sai Raja
Carter Roeser
Arash Sidhu
Amanjot Sidhu
Hattie Beth Sterns
Leo Sun
Anusha Vasudevan
Ian Wang
Erica Wood

OSU Cascades campus

Elena Irish

Portland General Electric

Maria Kolattukudy

Portland State University

Coranna Akdemirbey
Ben Chong
Elsie Johnson
Nathan Lee
Oreana Mendez Galue
Anwesha Mukherjee
Lily Nguyen
Justine Pendergraft

Reed College

Madoka Blandy
Marina McClain

Saltire Software

Jalen Chrysos

Summit Wireless Technologies, Inc.

Anika Cho
Nuzhat Hoque

University of Oregon

Lucas Braun
Oliver Elliott

University of Portland

Khushi Gupta
Sabrina She

VA Portland Health Care System

Helena Dobiecka
Lilah Krohn
Janine Li
Niyati Puranik
Arjun Subramanian
Ellie Tanimura

Vernier Software & Technology

Laura Denney
Manisha Nallakatla

Whitman Partners

Escher Wright-Dykhouse

Yakima Products Inc.

Lia Clark
Ellie Hammond

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**Franz Hall Room 026 - Dr. James Huntzicker,
Oregon Health & Science University**

**Investigating the Mechanism of Aap Independent Viral
Capsid Assembly of the Adeno-Associated Virus, a Promising
Gene Therapy Vector**

Abani Neferkara - Lincoln High School

Dr. Hiroyuki Nakai - Oregon Health & Science University, Portland, OR

Effects of Space Radiation on Cognition

Elin Bertheau - Mountain View High School

Dr. Jacob Raber - Oregon Health & Science University, Portland, OR

**Increasing Genetic Manipulation Efficiency by Identifying
Enhancer Regions on Adeno-Associated Virus (AAV) Vectors**

Jared Wieland - Wilsonville High School

Dr. Hiroyuki Nakai - Oregon Health & Science University, Portland, OR

**The Role of the Degron, a Protein-Degradation Motif, Essential
for Capsid Assembly of Adeno-Associated Virus (AAV)**

Sophia Chang - Phillips Exeter Academy

Dr. Hiroyuki Nakai - Oregon Health & Science University, Portland, OR

Franz Hall Room 034 - Mrs. Jill Murfin, Nike, Inc.

**From Innovation to Performance: Inside the Characteristics of
Nike Basketball Shoes**

Fouad Omrane - International School of Beaverton and Tony Chen - Franklin High School

Ms. Jennifer Polivka - Nike, Inc., Beaverton, OR

**Test Method Development to Determine Microfiber Shedding of
Apparel Materials During Laundering**

Leif Gregory - Jefferson High School

Ms. Melissa Lum - Nike, Inc., Beaverton, OR

**Effects of Systematically Varied Thiourethane-Functionalized Filler
Concentration on Polymerization Behavior and Relevant Clinical
Properties of Dental Composites**

Shirley Lam - Sunset High School

Dr. Carmem Pfeifer - Oregon Health & Science University, Portland, OR

**Franz Hall Room 111 - Ms. Taylor Wong,
Empirical Wealth Management**

Fermentation and Hydrolysis of Cornmeal to Produce Bioethanol

Suraj Kulkarni - Corvallis High School and Amanjot Sidhu - South Albany High School

Dr. Ganti Murthy - Oregon State University, Corvallis, OR

Introduction to Superconductors and Their Properties

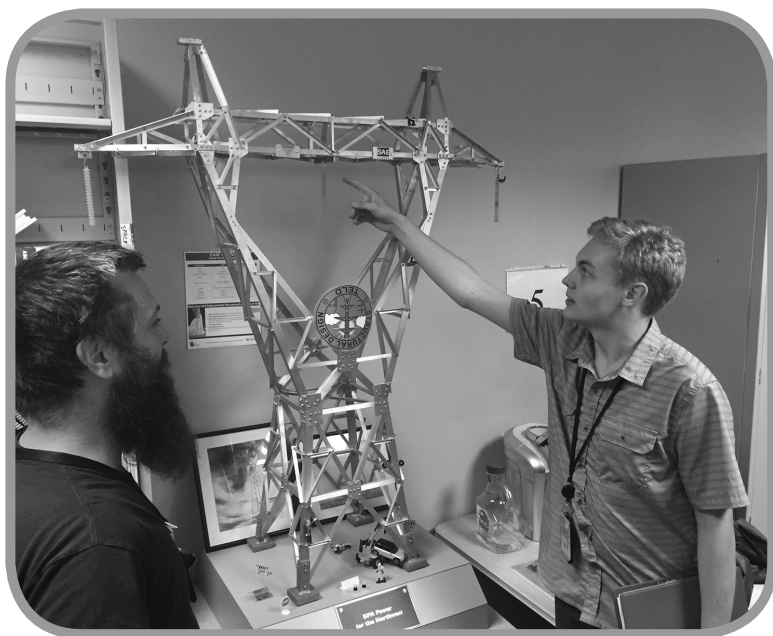
Jacob MacLaughlin-Johnson - Lebanon High School

Dr. Mas Subramanian - Oregon State University, Corvallis, OR

Living in a Materials World: Inorganic Pigments

Tulsi Patel - South Salem High School

Dr. Mas Subramanian - Oregon State University, Corvallis, OR



Lucas Carter with mentor Matt Weaver at BPA.

Franz Hall Room 206 - Mr. David Squire, Saturday Academy

Nodes and Edges: Using Biomedical Databases to Find Gene-Drug Relationships

Erica Wood - Crescent Valley High School

Dr. Stephen Ramsey - Oregon State University, Corvallis, OR

Javascript at Vernier: a New Spin on Data Collection

Laura Denney - McMinnville High School

Mr. Tom Smith - Vernier Software & Technology, Beaverton, OR

Google Firestore: a Simple Way to Query Realtime Automation Results

Manisha Nallakatla - West Linn High School

Ms. Vidya Selvamani - Vernier Software & Technology, Beaverton, OR

Computer Science Meets Biomedical Research: How Constructing a Knowledge Graph into Neo4j Could Advance Precision Medicine

Veronica Flores - South Salem High School

Dr. Stephen Ramsey - Oregon State University, Corvallis, OR

Franz Hall Room 214 - Mr. Hugh Mackworth, Saturday Academy

Automated Testing: a Developers Best Friend or Worst Nightmare?

Thomas Burg - Lakeridge High School and Advay Koranne - Catlin Gabel School

Mr. Darrell Teegarden - Mentor, a Siemens Business, Wilsonville, OR

Git Your Act Together: Squashing Inclusivity Bugs in Open Source Software

Anusha Vasudevan - Crescent Valley High School

Dr. Margaret Burnett - Oregon State University, Corvallis, OR

Explainable Artificial Intelligence: Harmonizing the Human-AI Relationship

Caleb Matthews - Philomath High School

Dr. Margaret Burnett - Oregon State University, Corvallis, OR

**Franz Hall Room 223 - Mrs. Deanna Phillips,
Bonneville Power Administration**

**Building the Web of Power in the Pacific Northwest: the
Reconstruction of a High Voltage Transmission Tower**

Elizabeth Zimmerman - Columbia River High School

Ms. Gabriela Alvarez - Bonneville Power Administration, Vancouver, WA

My Time at Bonneville

Lee Nickelson - Vancouver iTech Preparatory High School

Mrs. Deanna Phillips - Bonneville Power Administration, Portland, OR

Creating Span Tables for Legacy Wood Pole Structures

Lucas Carter - Lewis & Clark High School (Vancouver Flex Academy)

Mr. Matthew Weaver - Bonneville Power Administration, Vancouver, WA

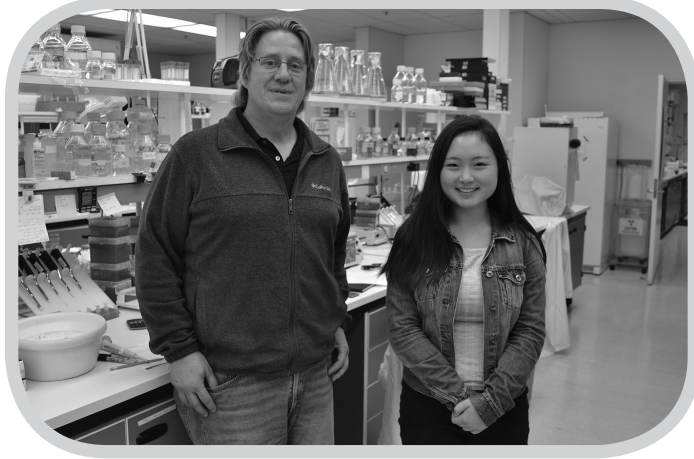
Silva Cells

Luis Contreras - Reynolds High School

Mr. Adam Farnsworth - Mead & Hunt, Inc., Portland, OR



Lee Nickelson with mentor Deanna Phillips at BPA.



Natalie Wang with mentor Dr. Larry Sherman at Oregon National Primate Research Center (OHSU).

**Franz Hall Room 231 - Ms. Diana Gordon,
Oregon National Primate Research Center (OHSU)**

Could Prolonged CPAP Benefit Lung Development?

Lauren Haines - Jesuit High School

Dr. Lyndsey Shorey - Oregon National Primate Research Center (OHSU),
Beaverton, OR

**The Relationship Between Tumor Suppressor Genes LZTR1 and
SMARCB1 in Schwannomatosis Pain**

Natalie Wang - Lincoln High School

Dr. Larry Sherman - Oregon National Primate Research Center (OHSU),
Beaverton, OR

Memory Specificity in Color and Location

Oliver Elliott - South Eugene High School

Dr. Dasa Zeithamova-Demircan - University of Oregon, Eugene, OR

Python Programming for Cognitive Neuroscience

Tim Crimmins - La Salle Catholic College Preparatory

Dr. Tatiana Shnitko - Oregon National Primate Research Center (OHSU),
Beaverton, OR

**Franz Hall Room 026 - Dr. John Crabbe,
VA Portland Health Care System**

Of Mice and Meth: Using Elisas to Discover the Effects of a New Immunotherapy on TNF-A Levels in Mice Bred for High and Low Methamphetamine Consumption

Arjun Subramanian - Sunset High School

Dr. Jennifer Loftis - VA Portland Health Care System, Portland, OR

Taking NAC-Tion Against Methamphetamine Addiction

Helena Dobiecka - Westview High School and Lilah Krohn - Centennial High School

Dr. Tamara Phillips - VA Portland Health Care System, Portland, OR

Quality and Patient Safety

Janine Li - Centennial High School

Ms. Christine Locke - VA Portland Health Care System, Portland, OR

**Franz Hall Room 034 - Ms. Taylor Wong,
Empirical Wealth Management**

Airline Low Visibility Operations

Catherine Lee - Sunset High School

Mr. Grant Blythe - Collins Aerospace, Wilsonville, OR

Connecting with Customers Through Technical Marketing

Corinne Hare - Cleveland High School

Dr. Claudia Jaffe - Lumencor, Inc., Beaverton, OR

The Never-Ending Process

Josephine Lai - Shorewood High School

Mr. Pushon Mukherjee - HP Incorporated, Vancouver, WA

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donate to the ASE program
saturdayacademy.org/donate**

Franz Hall Room 111 - Mrs. Jill Murfin, Nike, Inc.

Analysis of Ocean Upwelling Front Crossings in a Marine Vehicle Deployment

Arashvir Sidhu - South Albany High School

Dr. Geoffrey Hollinger - Oregon State University, Corvallis, OR

Looking for Connections Between Oregon Wildfires and Climate Indices

Clea Thomas - St. Mary's Academy

Mr. Andy Bryant - NOAA National Weather Service, Portland, OR

Understanding the Mechanics of Dune Erosion

Inessa Garrey - South Salem High School

Dr. Meagan Wengrove - Oregon State University, Corvallis, OR

Degradation of Pesticides Using Plastic Molybdenum Complexes

Samuel Glassman - Sunset High School

Dr. Louis Kuo - Lewis & Clark College, Portland, OR

Franz Hall Room 206 - Mr. David Squire, Saturday Academy

Volume Rendering and Ray Tracing: Simulating Light, Volume, and Shapes in 3D

Carter Roeser - West Albany High School

Dr. Yué Zhang - Oregon State University, Corvallis, OR

Photorealistic Rendering Based on Ray Tracing by Accelerating Structure

Ian Wang - Santiam Christian High School

Dr. Yué Zhang - Oregon State University, Corvallis, OR

Explainable Computing

Kevin Chang - Crescent Valley High School

Dr. Martin Erwig - Oregon State University, Corvallis, OR

Image Rendering Based on Ray Tracing for Different Materials

Lily Bakkom - Corvallis High School

Dr. Yué Zhang - Oregon State University, Corvallis, OR

**Post your photos and videos
with #ASEsymposium2019**

Franz Hall Room 214 - Mr. Hugh Mackworth, Saturday Academy

Bias Wrecking: Untangling Biases in Developer Actions

Audrey Au - Crescent Valley High School

Dr. Margaret Burnett - Oregon State University, Corvallis OR

**Following the Trail of Breadcrumbs: Concatenating Contiguous
Command Changes to Classify Intention**

Natalia Morales - Crescent Valley High School

Dr. Margaret Burnett - Oregon State University, Corvallis OR

Explainable AI (XAI): Bridging the Gap Between AI and Humans

Sai Raja - Corvallis High School

Dr. Margaret Burnett - Oregon State University, Corvallis OR

**Franz Hall Room 223 - Mrs. Deanna Phillips,
Bonneville Power Administration**

Engineering a Reliable Registrar Transmission Path Through Protection, Suitable Design and Work Practice

Brian Loop - Hudson's Bay High School

Mr. Stephen Thompson - Bonneville Power Administration, Vancouver, WA

Shockingly Entertaining: Graphic Design Meets Electrical Trade Concepts

Jerry Huang - Mountain View High School

Mrs. Christine Lindner - Bonneville Power Administration, Vancouver, WA

Source Impedance, Short Circuits, and Substations: Using Data and Analytic Modeling Systems to Advance PGE Planning and Distribution

Maria Kolattukudy - Westview High School

Mr. Frederick Harris - Portland General Electric, Portland, OR

Flash!: Fiber Optics and Graphic Design

Vincent Hsu - Mountain View High School

Mrs. Christine Lindner - Bonneville Power Administration, Vancouver, WA

“I am seeing the vast effect that my work will have and how much is going on in a lab. This made me more excited to pursue sciences and maybe to work in a research area of the sciences.”

ASE Intern



Kristina Thach and Amelia Costello with mentor Dr. Summer Gibbs and co-mentors Jesse Korber and Dr. Connor Barth at OHSU.

**Franz Hall Room 231 - Ms. Diana Gordon,
Oregon National Primate Research Center (OHSU)**

**Getting on Your Nerves: Understanding the Binding Mechanism
of a Nerve-Specific Fluorophore for Image-Guided Surgery**

Amelia Costello - Piedmont High School

Dr. Summer Gibbs - Oregon Health & Science University, Portland, OR

Life's Last Moments: Next Steps Toward Quality Hospice Care

Anvitha Bavineni - Sunset High School

Ms. Tracy Villarreal - Care Partners, Hillsboro, OR

Spike Testing for Tendon Mechanism

Edward Hu - Corvallis High School

Dr. Ravi Balasubramanian - Oregon State University, Corvallis, OR

**Synthesis of Fluorescent Drug Conjugates for Application to
Intracellular Paired Agent Imaging**

Kristina Thach - David Douglas High School

Dr. Summer Gibbs - Oregon Health & Science University, Portland, OR

**Franz Hall Room 026 - Dr. John Crabbe,
VA Portland Health Care System**

**Investigating the Effects of CAW on β -Amyloid Pathology
and Neuronal Health in the 5XFAD Mouse Model of
Alzheimer's Disease**

Minyan Chen - Oregon Episcopal School

Dr. Nora Gray - Oregon Health & Science University, Portland, OR

**Neural Stem Cell Proliferation After Repeated Traumatic
Brain Injury**

Nikhil Samudrala - Lincoln High School

Dr. Laura Villasana - Oregon Health & Science University, Portland, OR

Standing Your Ground: the Evolution of the Treatment for ITW

Shruthi Ananth - Westview High School

Dr. Bethany Sloane - Doernbecher Children's Hospital (OHSU), Portland, OR

The Effect of Exercise on Mice with a History of TBIs

Sree Neha Yeturu - Westview High School

Dr. Laura Villasana - Oregon Health & Science University, Portland, OR



Rye Scholin with mentor Dany Madden at IBM.

Franz Hall Room 034 - Dr. Davianne Duarte, Intel

Wildfire Proof Roof

Audrey Davis - Philomath High School

Dr. Skip Rochefort - Oregon State University, Corvallis, OR

**Exploring Mokume Gane Through Electron Microscopy and
Creating Microscopic Images Through Lithography**

Chase Lending - Crescent Valley High School

Dr. Pete Eschbach - Oregon State University, Corvallis, OR

Powered by Plastic: Turning Plastics into Fuel

Dara Coon - Philomath High School

Dr. Skip Rochefort - Oregon State University, Corvallis, OR

Hydrogels for Medical Applications

Hiral Patel - Philomath High School

Dr. Skip Rochefort - Oregon State University, Corvallis, OR

**Franz Hall Room 111 - Dr. Susan Shugerman,
Oregon Health & Science University**

I Made Mutated Plants with a Gamma Ray

Madoka Blandy - Cleveland High School

Dr. Melinda Krahenbuhl - Reed College, Portland, OR

Mysteries of Chemistry: Silver Self-Shielding

Marina McClain - Wilson High School

Dr. Melinda Krahenbuhl - Reed College, Portland, OR

Heteroleptic Ligand Design for Hydrogen Production

Oreana de los Angeles Mendez Galue - Westview High School

Dr. Theresa McCormick - Portland State University, Portland, OR

Electrochemical Measurements of Silicon Corrosion

Saha Kumar - Corvallis High School

Dr. Calvin Davis - HP Incorporated, Corvallis, OR

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Recrinder: Tinder for Recruiting

Escher Wright-Dykhouse - Wilson High School

Mr. Frank Chappell - Whitman Partners, Portland, OR

Parsing Query Logs to Examine Software Reliability

Ethan Wang - Sunset High School

Mr. Anandan Hariharan - NWEA, Portland, OR

Software Life Cycle and Development

Jason Shi - Sunset High School

Mr. Kishore Kollu - Mentor, a Siemens Business, Wilsonville, OR

Autonomous Drone Flight for Real-Time Air Quality Monitoring

Justine Pendergraft - Camas High School

Dr. John Lipor - Portland State University, Portland, OR



Nick Payton with fellow intern Cristin Brethower, and mentor Paul Tatynek at OHSU.

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**Screening Speaker Modules: Kanban Methodology
Applied to Hardware Testing**

Anika Cho - Health & Science School

Mr. Keith Greeney - Summit Wireless Technologies, Inc., Beaverton, OR

**Automating Source Version Control Policies in
Software Development**

Kai Morita-Mcvey - Cleveland High School

Mr. Siddesh Gowdar Devarajappa - McAfee LLC, Hillsboro, OR

Threat Intelligence Automation

Kristopher Tran - Centennial High School

Mr. David Stankovic - Oregon Health & Science University, Portland, OR

Analytics on a Web-Based API Using Python

Nuzhat Hoque - Oregon Islamic Academy

Mr. Ryan Kapsar - Summit Wireless Technologies, Inc., Beaverton, OR

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Bonneville Power Administration**

Asking is the Best Tool in Life

Andrew Li - Lake Oswego High School

Mr. Derrick Draper - Black & Veatch Corporation, Lake Oswego, OR

**The Effects of Different Types of Organic Substances on the
Fate of Nanoparticles in River Systems**

Hattie Beth Sterns - Crescent Valley High School

Dr. Jeff Nason - Oregon State University, Corvallis, OR

No Product Left Behind: an IE'S Role in Keeping Production Moving

Max Lin - Westview High School

Mr. Benjamin Hutt - Collins Aerospace, Wilsonville, OR

**Cloning the Human Head: Building a Stewart Platform to
Mimic the Movements of the Human Head**

Umair Rahim - Oregon Islamic Academy

Mr. Eric Faucette - Novus Labs, Beaverton, OR

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Oregon National Primate Research Center (OHSU)**

CRISPR for Genetic Containment of Eucalyptus

Ellis Kline - Corvallis High School

Dr. Steven Strauss - Oregon State University, Corvallis, OR

**Above Love: the Biology Underlying Cross-Generational Social
and Emotional Processing**

Khushi Gupta - Westview High School

Dr. Sarina Saturn - University of Portland, Portland, OR

**The Needle in a Haystack: Fine-Mapping the Resistance Gene in
the Snail Genome**

Leonardo Sun - Crescent Valley High School

Dr. Stephanie Bollmann - Oregon State University, Corvallis, OR

The Plight of the Western Monarch

Sabrina She - Westview High School

Dr. Laurie Dizney - University of Portland, Portland, OR



Coranna Akdemirbey with mentor Dr. Ken Stedman at PSU.

**Franz Hall Room 026 - Dr. Charles Meshul,
VA Portland Health Care System**

Viruses from Hell

Coranna Akdemirbey - Grant High School

Dr. Kenneth Stedman - Portland State University, Portland, OR

**Alcoholic Rhesus Macaques and Sleep Deprived Voles: a
Synaptic View**

Niyati Puranik - Westview High School and Ellie Tanimura - Lake Oswego High School

Dr. Charles Meshul - VA Portland Health Care System, Portland, OR

**Identification of Type I/II Muscle Fiber Specific Proteins with IHC
Validation to Specify ARMS or ERMS Tumor Sample Expression**

Madeline Moradi - Glencoe High School

Ms. Megan Cleary - Children's Cancer Therapy Development Institute, Beaverton, OR

Franz Hall Room 034 - Dr. Davianne Duarte, Intel

**Getting the Knack of Racks: Mechanical Engineering at
Yakima Products**

Amalia Clark - Trinity Academy

Mr. Patrick McKinney - Yakima Products Inc., Lake Oswego, OR

**Pipin' it up: Utilizing Pipe Systems with Binary Javascript Object
Notation and Qt GUI Software for Transportation Analysis
Through OpenCV Functions**

Nathaniel Lee - Jesuit High School and Anwesha Mukherjee - Westview High School

Dr. Wu-chi Feng - Portland State University, Portland, OR

Yakima and the Engineering Process

Elizabeth Hammond - Tualatin High School

Mr. Marcos Rodriguez - Yakima Products Inc., Lake Oswego, OR

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Oregon Health & Science University**

On the Sensation of Tone

Jalen Chrysos - Sunset High School

Mr. Danny Aley - Saltire Software, Tigard, OR

**Extrapolating Particle Energies with Neural Networks for
Improved Higgs Analysis**

Lucas Braun - School of Science & Technology

Dr. James Brau - University of Oregon, Eugene, OR

Investigations into the Acoustics of a Mandolin

Lynn Nguyen - Sunset High School

Dr. Stephen Tufte - Lewis & Clark College, Portland, OR

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Just Clear It! Separating Proteins in *E. coli* lysate

Anastasiya Kashyrna - Henrietta Lacks Health and Bioscience High School (HeLa High)

Ms. Melissa Patterson - AbSci, Vancouver, WA

**Do They Really Kill 99.9% of Germs? Testing the Efficacy of
Sanitizing Agents Against *Listeria monocytogenes***

Caroline Cook - Catlin Gabel School

Dr. Jovana Kovacevic - Food Innovation Center, Portland, OR

**Antimicrobial Resistance of *Listeria* spp. Isolated from a
Pacific Northwest Produce Processing and Handling Facility**

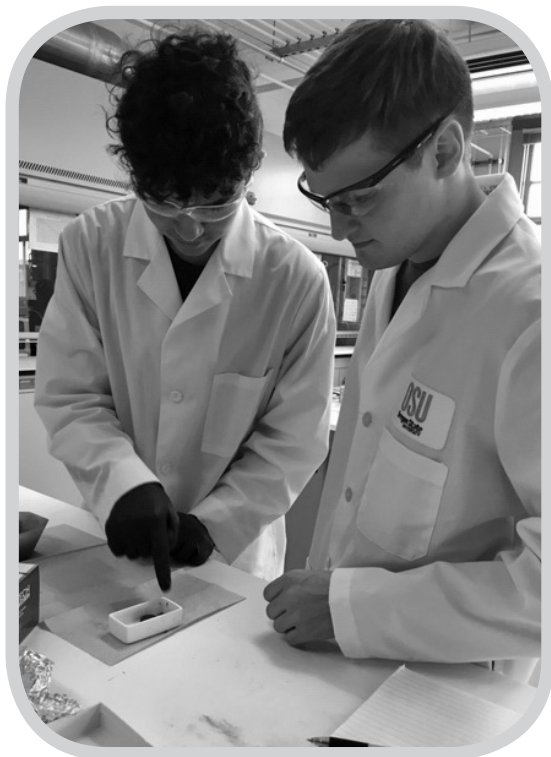
Clara Szalay - Orange County School of the Arts

Dr. Jovana Kovacevic - Food Innovation Center, Portland, OR

**Improving Efficiency of Freeze Drying and Quality of
Blueberries Using Laser Micro Perforation**

Daniel Hickey - Wilson High School

Dr. Qingyue Ling - Food Innovation Center, Portland, OR



Jake MacLaughlin-Johnson with mentor Brett Duell in the lab of Mas Subramanian at Oregon State University.

Franz Hall Room 214 - Mr. Pete Steinfeld, NVIDIA

Hacking 101: Security Games

Ben Chong - Union High School and Elsie Johnson - St. Mary's Academy

Dr. Wu-chang Feng - Portland State University, Portland, OR

Not Nsync: the Realignment of New and Old Data

Ethan Hansen - McMinnville High School and Rye Scholin - St. Mary's Academy

Ms. Dany Madden - IBM Corporation, Hillsboro, OR



Anusha Vasudevan at OSU.

**Franz Hall Room 223 - Mrs. Deanna Phillips,
Bonneville Power Administration**

**White Ink Cartridge Pigment Settling Characterization
Through Centrifugation**

Connor Moyce - South Eugene High School

Mr. Perrin Mao - HP Incorporated, Corvallis, OR

Helium Sniffing for Intra-Chamber Leaks

Ellen Hintzman - Corvallis High School

Mr. Brian Easton - HP Incorporated, Corvallis, OR

The Hackers Toolkit

Kai Gutierrez - Center for Advanced Learning

Mr. Michael Waxman - HP Incorporated, Vancouver, WA

**Reliability Stress Testing for Ink Cartridges: Centrifuge
Characterization and Drop Study**

Valerie Lending - Crescent Valley High School

Mr. Steve Reinhart - HP Incorporated, Corvallis, OR

**Franz Hall Room 231 - Ms. Diana Gordon,
Oregon National Primate Research Center (OHSU)**

Degrading Contaminants: Characterization of Reactive Mineral Intermediates

Cristin Brethower - Yamhill-Carlton High School

Dr. Paul Tratnyek - Oregon Health & Science University, Portland, OR

Lava Lagomorphs: Characteristics of Low-Elevation American Pika Populations

Elena Irish - Corvallis High School

Dr. Matt Shinderman - OSU Cascades Campus, Bend, OR

Environmental Chemistry: Natural and Human-Impacted Processes

Nicholas Payton - McMinnville High School

Dr. Paul Tratnyek - Oregon Health & Science University, Portland, OR

A Chill Summer: Research on Seed Germination

Xavier Tacker - Tigard High School

Ms. Andrea Kelsey - Bureau of Land Management, Colton, OR

“It’s exciting to work with students who bring new ideas to the table because they have not been ingrained with the process.”

ASE mentor

What is ASE?

Founded in 1990, the ASE program was designed to address a growing concern over the quantity, quality and diversity of our nation's future technical and scientific workforce. ASE has grown from a pilot program of 6 student interns to over 110 interns in summer 2019. For over 30 years, the program has provided more than 4,000 students with hands-on, project-based, eight-week internships with practicing professionals in science and engineering disciplines. These students come from a pool of over 500 applicants from Oregon and Southwest Washington.

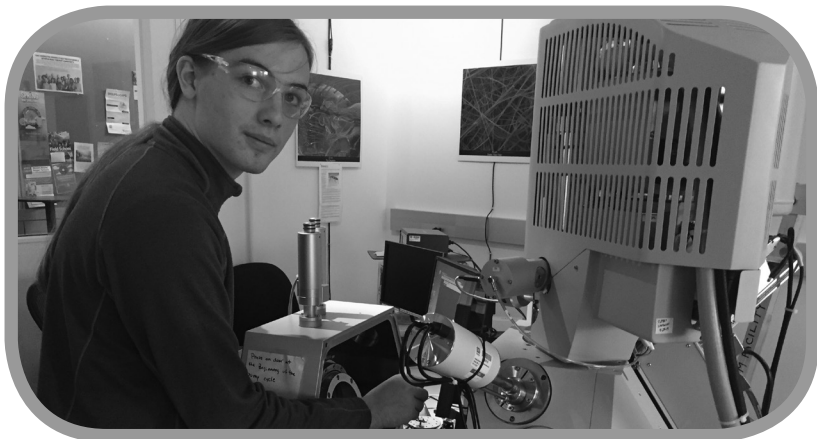
ASE engages high school students in STEM fields by providing them with:

- A mentor
- A competitive application process
- A comprehensive orientation and training program
- Real-world internship experience
- A tangible career path

HOW THE PROGRAM WORKS

ASE internships connect motivated high school students with mentors in a pre-professional setting in science, technology, engineering and math (STEM) fields. Mentoring organizations include universities, hospitals, research institutions, government agencies, nonprofits, and private companies. Student interns follow a rigorous application, interview and training process, and complete 296 internship hours under mentor supervision. ASE team members and teacher monitors provide support throughout the summer to mentors and students.

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Chase Lending at OSU.

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Eddie Hu with mentor
Dr. Ravi Balasubramanian at OSU.

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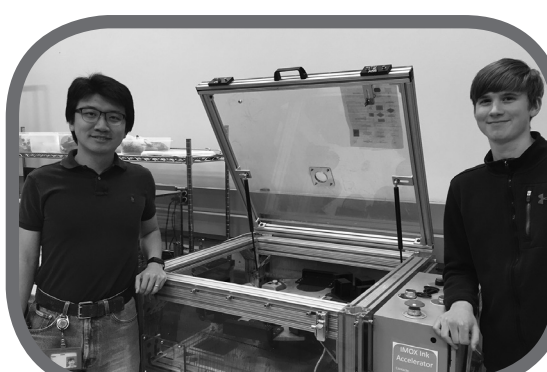
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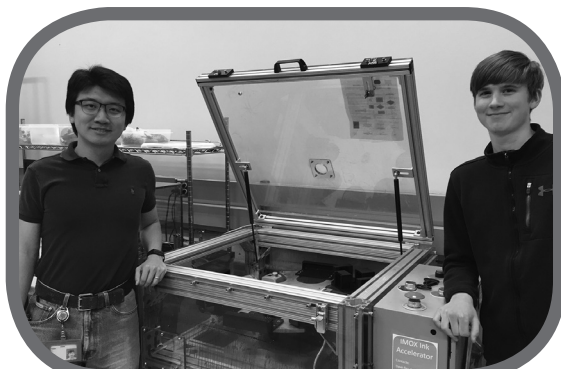
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Index for Presentations

A		Hare, Corinne	15	M	
Akdemirbey, Coranna	25	Hickey, Daniel	26	Maclaughlin-Johnson, Jacob	11
Ananth, Shruthi	20	Hintzman, Ellen	28	Matthews, Caleb	12
Au, Audrey	17	Hoque, Nuzhat	23	McClain, Marina	21
B		Hsu, Vincent	18	Moradi, Madeline	25
Bakkom, Lily	16	Hu, Edward	19	Morales, Natalia	17
Bavineni, Anvitha	19	Huang, Jerry	18	Morita-Mcvey, Kai	23
Bertheau, Elin	10	I		Moyce, Connor	28
Blandy, Madoka	21	Irish, Elena	29	Mukherjee, Anwesha	25
Braun, Lucas	26	J		N	
Brethower, Cristin	29	Johnson, Elsie	27	Nallakatla, Manisha	12
Burg, Thomas	12	K		Neferkara, Abani	10
C		Kashyrna, Anastasiya	26	Nguyen, Lynn	26
Carter, Lucas	13	Kline, Ellis	24	Nickelson, Lee	13
Chang, Kevin	16	Kolattukudy, Maria	18	O	
Chang, Sophie	10	Koranne, Advay	12	Omrane, Fouad	10
Chen, Minyan	20	Krohn, Lilah	15	P	
Chen, Tony	10	Kulkarni, Suraj	11	Patel, Hiral	21
Cho, Anika	23	Kumar, Saha	21	Patel, Tulsi	11
Chong, Ben	27	L		Payton, Nicholas	29
Chrysos, Jalen	26	Lai, Josephine	15	Pendergraft, Justine	22
Clark, Amalia	25	Lam, Shirley	10	Puranik, Niyati	25
Contreras, Luis	13	Lee, Catherine	15	R	
Cook, Caroline	26	Lee, Nathaniel	25	Rahim, Umair	23
Coon, Dara	21	Lending, Chase	21	Raja, Sai	17
Costello, Amelia	19	Lending, Valerie	28	Roeser, Carter	16
Crimmins, Tim	14	Li, Andrew	23	S	
D		Li, Janine	15	Samudrala, Nikhil	20
Davis, Audrey	21	Lin, Max	23	Scholin, Rye	27
Denney, Laura	12	Loop, Brian	18	She, Sabrina	24
Dobiecka, Helena	15	E			
E					
Elliott, Oliver	14				
F					
Flores, Veronica	12				
G					
Galue, Oreana de los Angeles Mendez	21				
Garrey, Inessa	16				
Glassman, Samuel	16				
Gregory, Leif	10				
Gupta, Khushi	24				
Gutierrez, Kai	28				
H					
Haines, Lauren	14				
Hammond, Elizabeth	25				
Hansen, Ethan	27				



Garrett Meyer, mentor Victor Li, and HP Corvallis



Connor Moyce mentor Victor Li at HP Corvallis.

Index for Presentations cont.

Shi, Jason	22
Sidhu, Amanjot	11
Sidhu, Arashvir	16
Sterns, Hattie Beth	23
Subramanian, Arjun	15
Sun, Leonardo	24
Szalay, Clara	26

T

Tacker, Xavier	29
Tanimura, Ellie	25
Thach, Kristina	19
Thomas, Clea	16
Tran, Kristopher	23

V

Vasudevan, Anusha	12
-------------------	----

W

Wang, Ethan	22
Wang, Ian	16
Wang, Natalie	14
Wieland, Jared	10
Wood, Erica	12
Wright-Dykhouse, Escher	22

Y

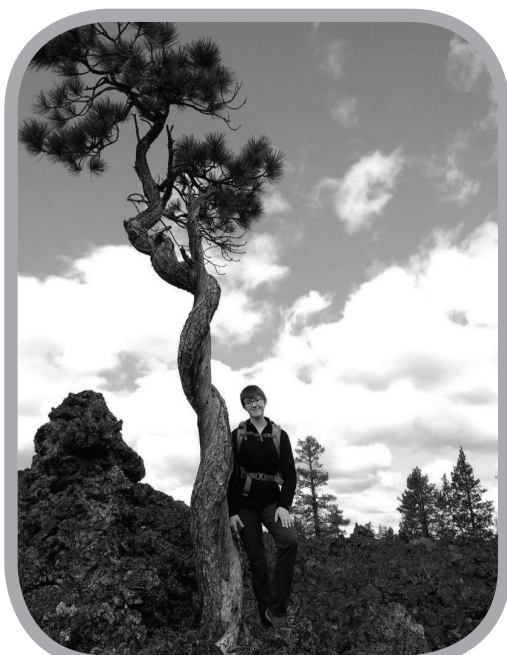
Yeturu, Sree Neha	20
-------------------	----

Z

Zimmerman, Elizabeth	13
----------------------	----



Oreana Mendez at PSU.



Elena Irish at OSU Cascades Campus



Helena Dobiecka at the VA Portland Health Care System.

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