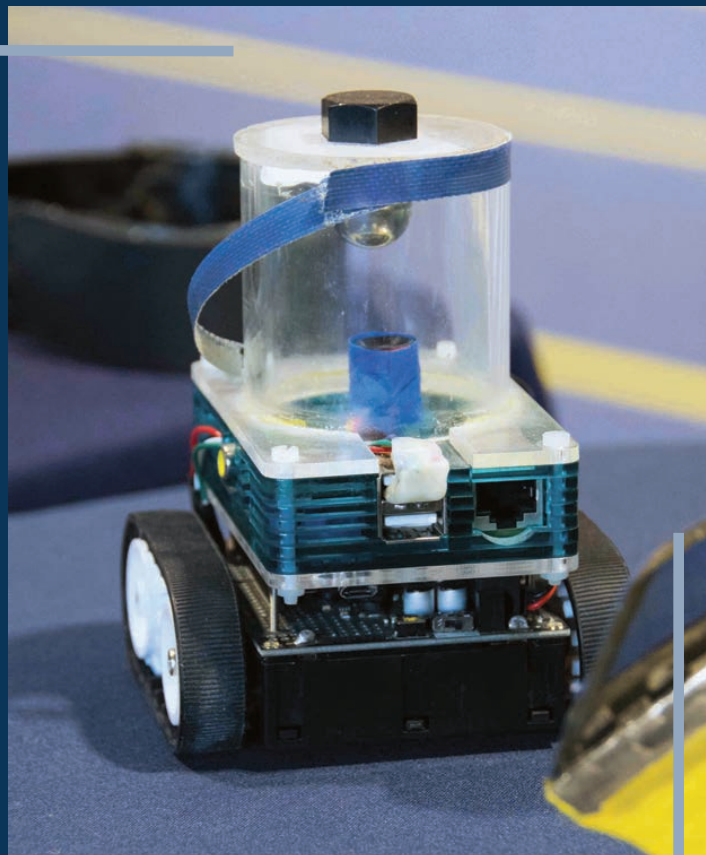


Research ShowCASE + Intersections2019

DISCOVERY, COLLABORATION + COMMUNITY Friday, April 19, 2019



 **CASE WESTERN RESERVE**
UNIVERSITY EST. 1826
think beyond the possible™

WELCOME TO Research ShowCASE 2019

I am so glad you could join us for Research ShowCASE + Intersections, a unique opportunity for researchers at Case Western Reserve University and its affiliates to present their inventions, discoveries, scholarship, and creative achievements.

We are proud to host Research ShowCASE for its 15th year. Included are nearly 600 presentations from high school students, undergraduates, graduate students, post-docs, faculty members and staff, representing virtually every academic discipline and specialty we practice at CWRU. The breadth of activity and the degree of interdisciplinary collaboration evidenced in these presentations is truly impressive!

We are especially delighted to welcome Mona Chalabi as the keynote speaker today. Ms. Chalabi is a journalist who really loves numbers. She is the Data Editor of *The Guardian* where she writes articles, produces documentaries, and conveys data through illustration and animation. She is also a data journalist for NPR.

After analyzing statistics for the United Nations, she saw how important data is and how easily it could be used by people with their own specific agendas. Since then, her work for organizations like Transparency International and *The Guardian* has had one goal: to make sure as many people as possible can find and question the data they need to make informed decisions about their lives.

Several new events have been added to Research ShowCASE this year. Our Corporate Relations Office is hosting "Women in Technology", a lecture by Barbara Humpton, the CEO of Siemens, USA. As the lead institution for a National Science Foundation (NSF) Alliances for Graduate Education and the Professoriate program (AGEP) grant, CWRU welcomes the participation of AGEP program participants from institutions across Northern Ohio. Also new this year, Research ShowCASE is proud to partner with the Baker-Nord Center for the Humanities in hosting the final round of the Warren A. Guthrie competition, which will recognize the university's most outstanding undergraduate public speakers.

Be sure to download our mobile app that will allow you to map your own individual journeys through the displays. I hope you will use it to chart a course through this impressive collection of posters, videos, prototypes, and other demonstrations.



Suzanne M. Rivera, PhD
Vice President for Research and
Technology Management



EVENTS

9 AM – 3 PM	Event open to the public	10 AM – 11:30 AM	Michelson Morley Presentations Clapp Hall, Room 405
9 AM – 10 AM	<p>WELCOME Ben Vinson, III Provost and Executive Vice President</p> <p>KEYNOTE ADDRESS <i>"Taking the Numb Out of Numbers"</i> Mona Chalabi</p> <p>FACULTY DISTINGUISHED RESEARCH AWARDS Suzanne Rivera, PhD Vice President for Research & Technology Management</p>	10 AM – 3 PM	Oral Presentations Multipurpose Room
		11:45 AM	Lunch available
		12 – 1 PM	SAGES Promising Future Scholars Reception Hall of Fame Room
		12 – 2:45 PM	Intersections judging Celebration of Student Writing
		1:30 – 3 PM	Guthrie Prize Competition Hall of Fame Room
10 AM – 11 AM	<i>"Women in Technology"</i> Lecture Barbara Humpton, CEO Siemens USA Hall of Fame Room	3 PM	Event concludes

KEYNOTE SPEAKER

“Taking the Numb Out of Numbers”

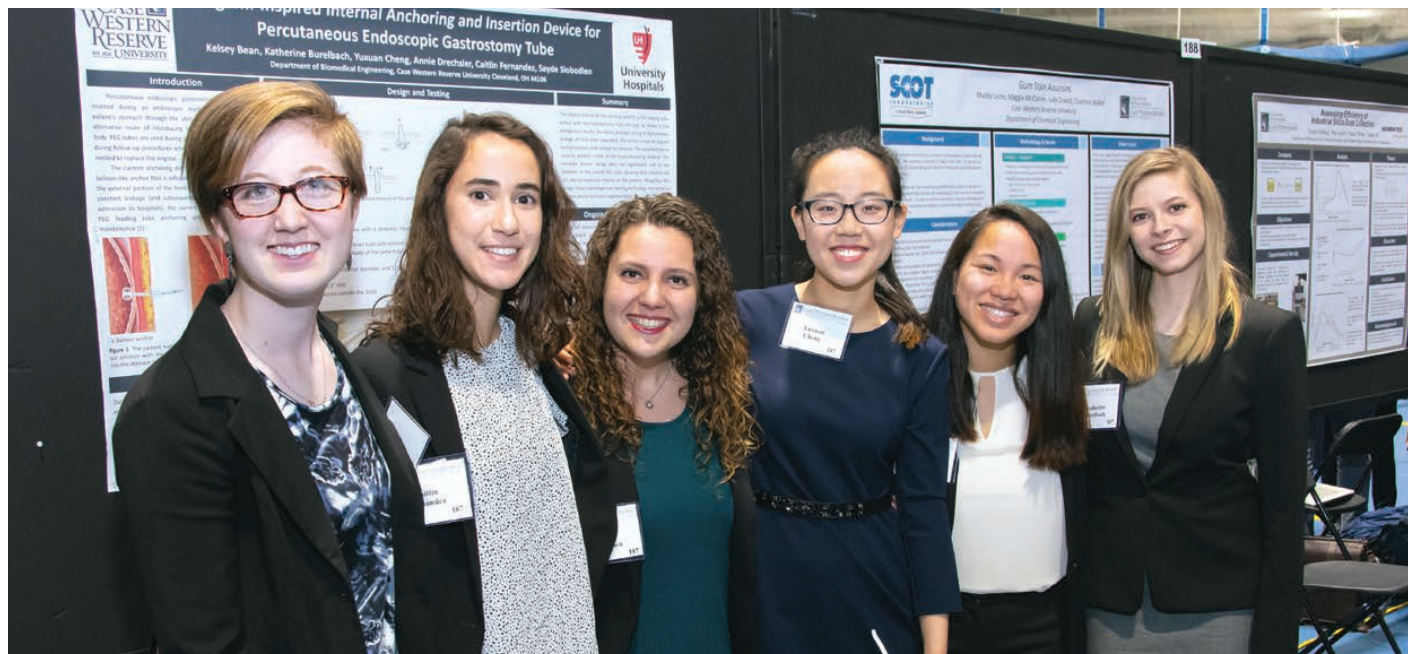
Mona Chalabi is a journalist who really loves numbers. She is the data editor of The Guardian where she writes articles, produces documentaries, and illustrates, as well as animates, data. She is also a data journalist for NPR.

After analyzing statistics for the United Nations, Mona Chalabi saw how important data was, but also how easily it could be used by people with their own specific agendas. Since then, her work for organizations like Transparency International and The Guardian has had one goal: to make sure as many people as possible can find and question the data they need to make informed decisions about their lives. She gives speeches and teaches courses on data journalism, and when she can, she illustrates data. Her illustrations were commended by the Royal Statistical Society; they said, “Her deceptively simple graphs are fun and accessible.”

Mona also helped create the Emmy-nominated four-part video series “Vagina Dispatches” which explores the physical, social, and sometimes political dynamics that surround women’s bodies. She also hosts Vice’s TV program “The Business of Life,” a new kind of talk show that breaks down the financial machinery behind some of the most important issues of our time. Mona has a master’s degree in International Security from the Paris Institute of Political Studies and has worked for FiveThirtyEight, the Banks of England, the Economist Intelligence Unit, and the International Organization for Migration.



Mona Chalabi



PARTNER EVENTS

Intersections

Support of Undergraduate Research and Creative Endeavors (SOURCE) is the primary partner with The Office of Research and Technology Management in hosting Research ShowCASE + Intersections. Intersections provides an opportunity for the campus community to see and learn about the research and creative activities of our undergraduates and to celebrate their work. Intersections is one of the best ways for undergraduates to speak directly with others about their work, how they got involved, and more.

Case Western Reserve University's location is ideal for creating a culture of undergraduate research. We not only have outstanding undergraduate faculty, but also the School of Medicine, University Hospitals, the Cleveland Clinic, the many museums and more that welcome our undergraduates for research, scholarly and creative projects.

NOA-AGEP Research Symposium

The Northern Ohio AGEAP Alliance (NOA-AGEP) is funded by the National Science Foundation to develop, implement, and study a model to improve underrepresented student participation, preparation, and success in STEM graduate

education, and to prepare them for entry into the professoriate. NOA-AGEP pursues three primary purposes: provide additional supports, both financial and relational, to a cohort of 32 underrepresented PhD students in Biological Sciences, Chemistry, and Engineering; collaborate with the northern Ohio university community to create an environment better suited to recruit, retain, graduate, and place into the professoriate underrepresented PhD students in STEM fields; and function as an alliance of seven universities in the creation of a model for reproduction by future alliances committed to underrepresented STEM graduate education across the U.S.

The 3rd Annual NOA-AGEP Research Symposium is incorporated within Research ShowCASE, featuring additional professional development and community building opportunities focused on the underrepresented faculty experience.

Q-Grad Symposium

QGrad is a graduate and professional student organization whose goal is to engage and educate individuals within the organization and the local community who will go on to be professionals in any field. Social workers, doctors, scientists, and

PARTNER EVENTS (CONTINUED)

scholars need training and education, not only for themselves, but also to advocate for and educate those around them.

Q-Grad believes that it is imperative for scholars, and professionals, to not only respond to issues related to human and civil rights, the increasing violence against LGBTQ people, and identity politics, but to take a more active role in the education and support of continued social change. It is often difficult to embrace the roles of both scholar and advocate. We cannot hide behind our professional or scholarly identities. In fact, we must remember that our identities as professionals and as scholars not only intersect with, but are in fact embedded in, these other aspects of our selves.

The partnership between Q-Grad and Research ShowCASE, now in its second year, is an ideal venue to further this discussion.

SAGES Promising Future Scholars Reception

The Promising Future Scholars Reception is an invitation-only event that recognizes first-year students who embody CWRU's spirit of intellectual inquiry and innovative thinking. Attendees are nominated by their SAGES First Seminar instructor. Since its inception in 2015, this event has been held as part of Research ShowCASE and is designed to inspire first-year students to pursue their interests in research, scholarship, and creative endeavors.

The highlight of the event is a talk by one of CWRU's world-renowned faculty members, introducing their

research and the academic path that led them to it. This year, the featured faculty member is **Mark Joseph**, the Leona Bevis/Marguerite Haynam Associate Professor in Community Development of the Jack, Joseph and Morton Mandel School of Applied Social Sciences.

Warren A. Guthrie Competition

The Warren A. Guthrie competition recognizes the university's most outstanding public speakers. The final round of the competition will take place during Research ShowCASE. The contestants will each deliver a 5-minute talk, modeled after the interactive and visually rich performances popularized by the many online "TED" and PechaKucha style talks. Cash prizes will be awarded for the best three presentations. Many of the finalists selected topics that blend their on-campus research with their off-campus experiences and passions.

The prize is named in honor of Professor Warren A. Guthrie (1911–1986), a beloved television newscaster and longtime chair of the college's Speech Department. The Guthrie Prize was endowed through the generosity of Dr. Ronald H. Carpenter (WRC '54, MA '59), who has enjoyed a distinguished career as professor of speech and English at the University of Florida. Dr. Carpenter credits his relationship with Warren Guthrie and winning first prize in the Woodward Oratory Contest at Western Reserve University with establishing the trajectory of his career.

REMEMBERING WILLIAM GRIMBERG

Director of National Development

Our team will be forever grateful for Bill's tireless support of Research ShowCASE, his commitment to Case Western Reserve University and his amazingly kind personality.



William Grimberg

TIPS FOR NAVIGATING RESEARCH SHOWCASE

Research ShowCASE is an amazing celebration of all the research and scholarship done in the CWRU community. In order to help you get the most out of your experience, we suggest you consider navigating through the event using some of the techniques listed here.

Mobile App. Learn more about the projects, navigate your way through the event and help spread the word today and throughout the year about CWRU's Research ShowCASE.

Download the "Guidebook" mobile app for our "Research ShowCASE 2019" guide:

- Select "Guidebook" from the Apple App Store or Google Play
- Find and open the "Guidebook" app that installed on your mobile device
- Search for "Research ShowCASE 2019" in the "Guides" section
- Start Exploring!
- The app allows you to:
 - View the schedule of events
 - Search for posters of interest
 - Map out the posters you want to see
 - Take one of our pre-defined "journeys" to view posters on specific topics
 - See our sponsors
 - Vote for your favorite poster or booth

Engage the presenter and ask questions. Presenters can guide you through their projects. Research ShowCASE is their chance to explain their work to

others, an essential skill for researchers. Some ways to engage the presenters include the following:

- Tell me about your project.
- What was your biggest challenge?
- Will this research/project continue?
- What is the next question for this area of research?
- How did you get interested in this field?

Booths and Active Demonstrations. Walk the perimeter of the venue and explore information about centers, departments, programs and individuals doing exciting work. The booths are where you can see the research in action. Watch, touch, see and hear what's happening.

Oral Presentations. There are oral presentations going on throughout the day in The Multipurpose Room on the Upper Level. In the lobby and other prominent locations, look for the presentations schedule and have a seat in the audience to hear the presenters talk about their work.

Vote for your favorite. Keep track of the poster or booth numbers for those you visit. When you are ready to leave, don't forget to vote for your favorite using the mobile app. You can also submit your response in one of the Audience Favorite ballot boxes at the event. There is a prize for the poster or booth that gets the most votes.

Questions. Volunteers can be identified by multi-colored ribbon on their nametags. Ask any of them for help at any time.



Like us on Facebook at
<https://www.facebook.com/CWRUResearchShowCASE>



Tweet about us! [#CWRUShowCASE2019](#)

FACULTY DISTINGUISHED RESEARCH AWARDS

Research is at the core of Case Western Reserve University, and our faculty make groundbreaking discoveries and inventions every day. Across the university, faculty members solve important problems, advance new technologies, and pave the way in emerging industries. In recognition of such contributions, the university annually bestows the Faculty Distinguished Research Award.

JILL BARNHOLTZ-SLOAN

Sally S. Morley Designated Professor in Brain Tumor Research

Collaboration is at the heart of Jill Barnholtz-Sloan's work. Recognized by colleagues as a "team scientist," her impact on research extends well beyond her own projects in brain-tumor epidemiology.

Because of her expertise in bioinformatics, Barnholtz-Sloan is often called on to help researchers design their studies and interpret the results. She also leverages the power of collaboration in her own research: To gather a larger sample for brain-tumor research, she works with others as principal investigator (PI) of the Ohio Brain Tumor Study, a multi-site network. And she's teamed with other researchers as PI for the Central Brain Tumor Registry of the United States.

Her research has shed light on various aspects of brain tumors, including cancer demographics and therapeutics, among others.

With more than 250 peer-reviewed publications, Barnholtz-Sloan holds primary appointments in the Department of Population and Quantitative Health Sciences and at the Case Comprehensive Cancer Center.



members wore Microsoft HoloLens headsets to see the performance come to life.

Since the early 2000's, Galbraith who holds degrees in biomedical engineering and contemporary dance, has been pairing technology and dance. His *Kinetic Shadows* used Internet2 technology to have dancers and musicians perform simultaneously in different cities. And, in his 2010 piece, *In Common Space*, Galbraith again brought together six dancers across the country in one unified performance using broadband technology.

Galbraith was a principal dancer with the Martha Graham Dance Co. in New York, and also is an established national leader in dance medicine. His work in that area also extends to Case Western Reserve, where he co-directs the CWRU Dancer Wellness Project.

GARY GALBRAITH

Professor of Dance

Gary Galbraith choreographed a first-of-its-kind dance performance with his work *Imagined Odyssey*. The piece, which debuted in 2017, had dancers interacting with holograms as audience



JONATHAN L. HAINES

Mary W. Sheldon MD Professor of Genomic Sciences

A world-renowned genetic epidemiologist and human geneticist, Jonathan Haines's research has contributed to such groundbreaking discoveries as successfully mapping many of the first Mendelian diseases and genetic breakthroughs for many neurodegenerative and ocular diseases.

The impact of his work can be seen in his more than 600 publications, 11 of which have been cited over 1,000 times each. His top 10 articles have been cited more than 24,000 times, including a 2005 article on macular degeneration, which remains one of the most-cited papers in biomedical research. He has delivered more than 150 invited lectures and has six patents.



FACULTY DISTINGUISHED RESEARCH AWARDS

Haines is chair of the Department of Population and Quantitative Health Sciences at Case Western Reserve University, where he began in 2013. He also is founding director of the Cleveland Institute for Computational Biology, a collaborative among the School of Medicine, University Hospitals and Cleveland Clinic.

ROGER QUINN

**Arthur P. Armington
Professor of Engineering**

Over more than three decades at Case Western Reserve University, Roger Quinn has become as an international leader in robotics, making seminal contributions to the fascinating and rapidly-emerging field of bio-robotics.

Quinn has also guided graduate students, postdoctoral fellows and research associates in developing new designs and control theories based on biological principles for improving robot performance.

His work has been crucial in helping to achieve better understanding of the kinematic and dynamical mechanisms underlying the motion of animal systems. Quinn has secured eight patents as a result of his work in the field of motor control research, bridging neurosciences and engineering.

He has graduated 34 doctoral and 77 master's students; published more than 80 papers in international scientific journals; given more than 150 scientific lectures at national and international conferences; and won 11 Best



Paper or Best Video Awards from leading international conferences in the fields of robotics, automation and artificial intelligence.

JAGDIP SINGH

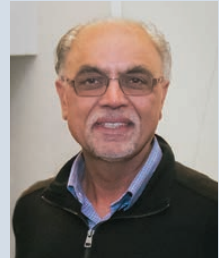
AT&T Professor of Marketing

Considered a leading scholar in the interdisciplinary field of service innovation and management, Jagdip Singh has distinguished his 30-year career with deep and meaningful research, an inventiveness in the classroom and his efforts on behalf of students.

He is regarded as the founding father of the emerging field of "organizational frontline research," a group of scholars and practitioners who study interactions at the point of contact between an organization and its customers. He has been particularly recognized for advancing the understanding of the importance of frontline employees.

He is among the most heavily cited faculty members at Case Western Reserve University, with more than 20,520 citations. In addition, Singh has helped develop partnerships with a host of Northeast Ohio's blue-chip companies to provide mentors, internships and career opportunities for university students.

In May 2018, he was awarded both the Weatherhead School's highest research honor—the Enduring Impact Award—and, for the second time, its excellence in Doctoral Teaching and Mentor Award.

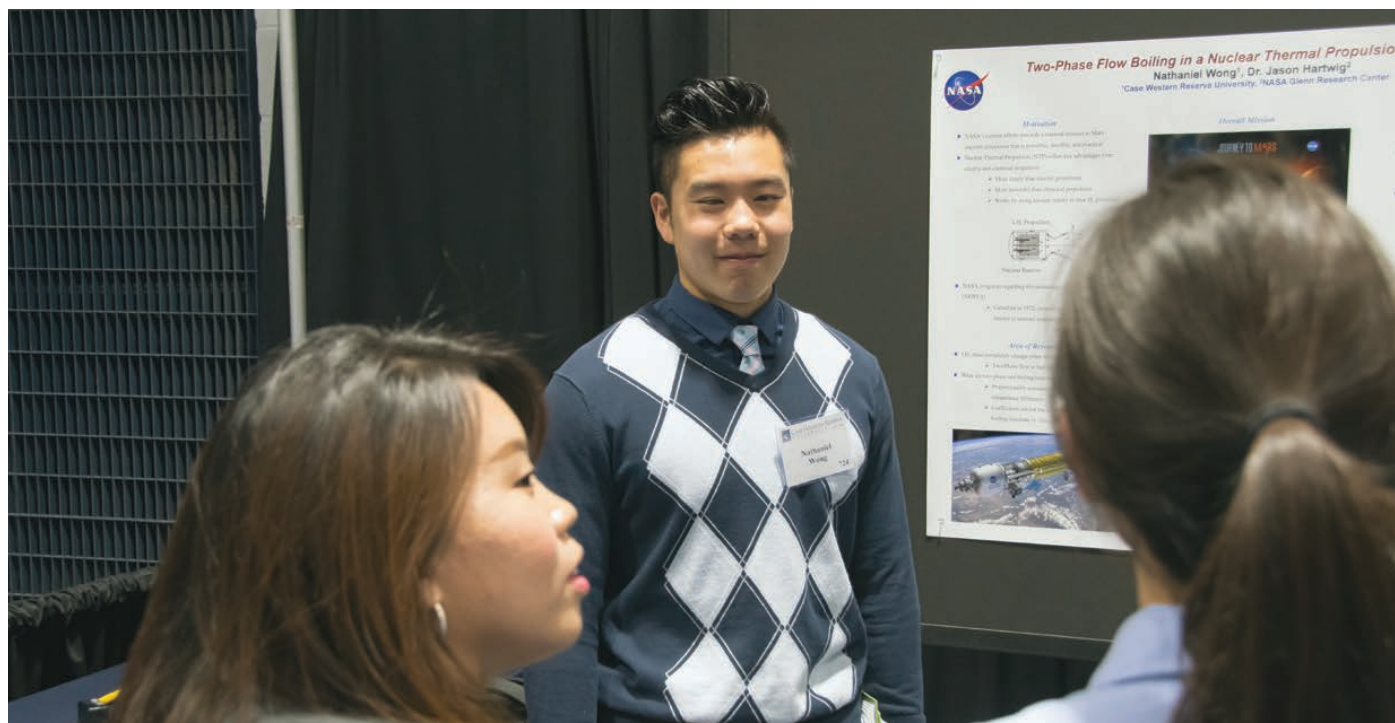


APPLIED SCIENCE

- 1 **Sarah Mitchell** CHEMISTRY
Lewis Acid-Activated Reactions of Silyl Ketenes for the Preparation of α -Silyl Carbonyls
- 2 **Melyssa Shively** PHARMACOLOGY
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- 3 **Hao Chong** ELECTRICAL ENGINEERING AND COMPUTER SCIENCE
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- 4 **Ian Adams** MECHANICAL AND AEROSPACE ENGINEERING
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- 7 **Shaoyang Dong** CIVIL ENGINEERING
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- 8 **Kenneth Moses** MECHANICAL AND AEROSPACE ENGINEERING
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- 13 **Kaiyu Deng** MECHANICAL AND AEROSPACE ENGINEERING
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- 16 **Michael Dercoli** BIOLOGY
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- 19 **Yanjun Li** MECHANICAL AND AEROSPACE ENGINEERING
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- 20 **Yanjun Li** MECHANICAL AND AEROSPACE ENGINEERING
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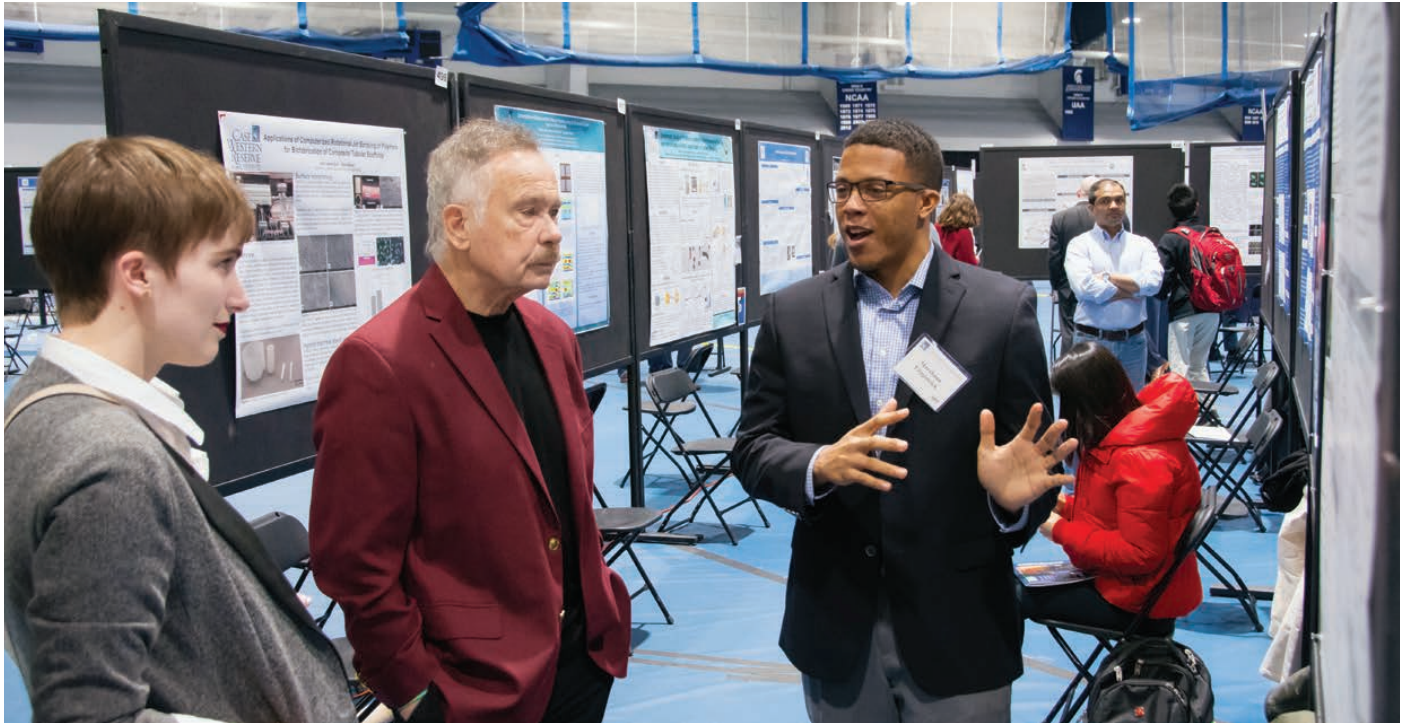
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A number of CWRU faculty members regularly offer opportunities for highly motivated high school students to engage in research experiences on the CWRU campus. These activities introduce young students to research practices and scientific concepts, and inspire a lasting interest in science, engineering and medicine. High school students may contact individual faculty members pursuing research in an area of interest to learn about available projects.

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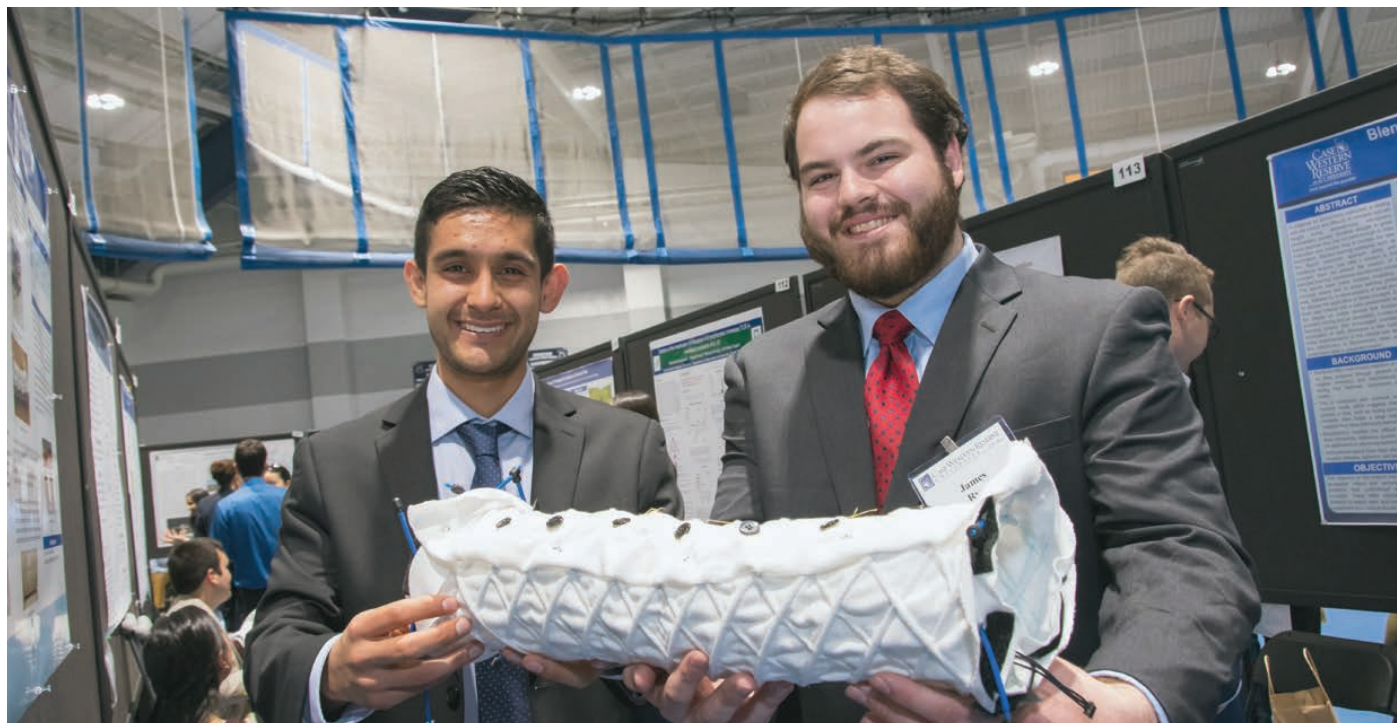


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