

WORCESTER POLYTECHNIC INSTITUTE

SCHOOL of ARTS & SCIENCES

INTEGRATE. IMAGINE. INNOVATE. IMPACT.







VISION

5

To inspire members of the WPI community to be creators, scholars, inventors, and responsible, ethical global citizens

MISSION

To bring together cross-disciplinary and diverse perspectives to promote discovery and communication, advance knowledge, and improve the human condition

VALUES

Inclusion Collaboration Curiosity/C ourage Innovation Respect



FROM THE DEAN

It is with great pride that I share with you the latest edition of *Pathways*, the School of Arts & Sciences annual report, highlighting the many accomplishments of our students, faculty, and staff during the 2022-23 academic year. As we reflect on the past year, there is a profound sense that in many ways we have moved beyond the years of isolation brought by COVID. And while we feel a sense of gratitude for a return of the connections we missed during the darkest days of the pandemic, we also find ourselves experiencing a time when higher education and its values face many challenges. As we consider the lessons of the last three years, it becomes apparent that one way we can give our students formative opportunities for success in this pivotal time is to reach out and collaborate with people and communities who share our values, sense of community, and commitment to ethical global impact. We believe that establishing such connections can help us discover innovative approaches to solving old and emerging problems together.

Over the past year, the School of Arts & Sciences has continued to leverage its partnerships and connections to co-create groundbreaking research, innovative degree programs, and new opportunities for our students to be prepared for success in an ever-changing world. As you will see from these pages, we have created opportunities for students and faculty to be part of a world of innovation that is respectful, ethical, and inclusive. The School of Arts and Sciences has worked together to open doors and to bring more people and ideas to the table. Examples of our connectedness include our recent partnerships with the College of the Holy Cross and Assumption University in Worcester to offer master's degree programs to their students, and our partnership with the Zurich University of Applied Sciences in Switzerland that will yield fruitful student and faculty exchanges.

The values of the School of Arts & Sciences—inclusion, collaboration, curiosity, courage, innovation, and respect—are core to the work we undertake every day to "inspire members of the WPI community to be creators, scholars, inventors, and responsible, ethical global citizens." It is not by accident that our first value is inclusion, for if we can connect with others in creating a collective sense of belonging, we will be stronger together. Although there are many examples of enhancing belonging within the School of Arts & Sciences, one you will read about within these pages is our Critical Conversations forums: campus-wide dialogues featuring academic experts and those with lived experiences from our community and beyond. These forums are representative of how the initiatives of the School of Arts & Sciences, of its faculty, of its staff, and of its students, strive to create a community where diverse voices and opinions are explored in a respectful and inclusive environment.

I invite you to explore this publication to learn more about the scholarship and dedication of the students, faculty, and staff of the School of Arts & Sciences.

Jean A. King, PhD Peterson Family Dean of Arts & Sciences

OPENING DOORS HOME AND ABROAD

WPI Creates New Student Pathways with Local and International Partners



WPI President Grace Wang and College of the Holy Cross President Vincent D. Rougeau sign a dual-degree agreement. Photo courtesy of Matthew Burgos.

Each spring, as snow and ice give way to green leaves and fresh grass, we throw open our doors and invite the world in. Metaphorically speaking, it is springtime at WPI—and the School of Arts & Sciences has opened its doors to new partners near and far. After years of collaboration and relationship building, the university has developed academic agreements with two local institutions, the College of the Holy Cross and Assumption University, as well as with a Swiss partner, Zurich University of Applied Sciences (ZHAW). All three agreements promise to broaden students' opportunities, foster faculty collaboration, and serve WPI's core commitments as a global school anchored in the Worcester community.

Even as COVID pushed academia inward, Jean King, Peterson Family Dean of Arts & Sciences, and her colleagues looked outward, turning informal partnerships into new pathways for student learning. For Assumption and Holy Cross, this meant acknowledging their shared history as Worcester-based institutions of higher education and finding new ways for students to access WPI's worldclass graduate programs. For ZHAW, the agreement codified years of faculty collaboration and a common approach to student learning. According to Dean King, these three agreements meet the moment, not only for students, but for society at large. "We cannot solve problems like climate change without moving beyond our silos and incorporating the expertise of others," said King. "Higher education is at a point where we need to leverage what we do well and what our partners do well to address the problems we face and meet the needs of our students."

Finding Strength in Cross-Cultural Collaboration

WPI found a ready-made partner in ZHAW. The two universities enjoyed collaboration well before talk of a formal agreement, including regular transatlantic visits by students and faculty. Each year, WPI students rank Switzerland among their top-three choices for IQP project centers, driven as much by cultural interest as the country's storied engineering and life sciences expertise. "Our partnership with ZHAW was a decade in the making," explained King, citing longevity as a key to success. "In all of our relationships, we have a better chance of a future together when we share a deep history together."

ZHAW also offered WPI students a broader connection to industry than they could get from studying in the United States alone. A product of Switzerland's unique education system, ZHAW connects its students to companies and research facilities that require them to apply theory to real-world applications. "A high percentage of our students' research projects are done together with industry," explains Urs Hilber, dean of ZHAW's School of Life Sciences and Facility Management. "Industry needs a problem solved through a new process or product, and [our students and faculty] do the research." For Hilber, the similarities to WPI's approach was clear, making the possibility of a deeper, more formal relationship between the two institutions promising.

Building on their shared approach to applied research and teaching, ZHAW and WPI developed a dual-degree program that allows graduate students to study at both schools' campuses, earning two master's degrees in less time than it would take to earn them separately. However, the advantage of the program is far more than just expeditious—by design, it allows students to create synergistic curricula that match the realities of today's marketplace. Students may choose to pursue two degrees in the same field, or in separate but related fields. "Imagine that you're a student at ZHAW who is interested in merging data science with your medical engineering degree," explained Carolina Ruiz, associate dean of Arts & Sciences at WPI and one of the program's architects. "You can match your engineering degree at ZHAW with a data science degree at WPI, and work with a dedicated advisor at each university to tailor your coursework and master's thesis to meet both your interests and each institution's requirements."

While an interdisciplinary approach to education has long been a mainstay of higher education, WPI's collaboration with ZHAW allows students to leverage the expertise of faculty from two universities, giving them a more diverse and international academic experience. Additionally, students within the dual-degree program will be required to study in both Worcester and Zurich, offering an immersive experience in both American and European cultures. "Going abroad, you're a bit out of your comfort zone," Hilber acknowledged. "Getting to know other people is how you manage—and that's also how you become a member of new networks, get new ideas, and make friends forever."



Faculty and deans from ZHAW meet with WPI's administration in September 2022.





Dean King, Associate Dean Ruiz, and WPI physics professor Nancy Burnham visit the ZHAW campus in Winterthur, Switzerland.

Change Starts at Home

As much as it prides itself as a global school, WPI equally honors its more than 150-year history in Central Massachusetts, as evidenced by new partnerships with two Worcester colleges. In 2023, WPI President Grace Wang signed a memorandum of understanding with the College of the Holy Cross. A similar agreement with Assumption University was previously in existence. These partnerships, forged with neighboring institutions mere minutes from WPI's main campus, will provide bachelor-to-master degree pathways for undergraduate students at Assumption, Holy Cross, and WPI. For those students interested in pursuing their master's degree at WPI, WPI faculty advisors will work with them to select courses that satisfy their master's degree requirements and that further their academic interests.

WPI stands to benefit from these agreements with a new cadre of highly gualified, local students matriculating into its master's degree programs; however, the relationship is symbiotic. As an undergraduate-only institution, Holy Cross can now offer their students a streamlined pathway to a local and esteemed graduate school. Through this new program, students can complete their Bachelor of Arts degree at Holy Cross and their Master of Science or Master of Engineering degree at WPI in an accelerated timeline. As undergraduates at Holy Cross, students may apply two qualifying courses toward their master's degree at WPI, accelerating their path to completion. "As two local institutions, we're finding ways for students to work with both schools," noted King. "They will now realize, 'Wait—I could go to Holy Cross and WPI. I don't have to choose."

The agreement allows Holy Cross graduating students to matriculate into any participating graduate program at WPI, beginning with the mechanical and materials engineering, computer and electrical engineering, computer science, mathematical sciences, and physics programs—and with more to follow. Elisabeth Hiles, director of strategic initiatives and planning at Holy Cross, sees a seamless transition from undergraduate to graduate-level work as another benefit to students. "They'll have an advisor at Holy Cross who partners with an advisor at WPI to discuss course planning," said Hiles. "This means that our students will start getting familiar with the WPI system as early as their sophomore year."

For Assumption students interested in the field of neuroscience, the agreement with WPI provides a pathway to WPI's new MS in neuroscience program.

Similar to the agreement with Holy Cross, Assumption students may begin planning for their MS degree as early as their sophomore year. "Undergraduate students at Assumption will be able to double count courses toward their graduate degree," explained Ruiz, noting that the accelerated pathway is open to students in neuroscience, biology, psychology, or a related field. "Because the process can start early in their undergraduate work, it will help make for a much more targeted graduate experience."

Michele Lemons, professor of biology and director of the Center for Neuroscience at Assumption, sees the collaboration as a win-win for all involved. "Our students [graduate with a] solid understanding of neuroscience fundamentals, which will be an asset to WPI's graduate program," she said. "Also, many Assumption students are interested in staying in the area after graduation, and having a local option for a graduate degree can be exciting."

In addition to allowing Assumption students a means to study in WPI's neuroscience program, WPI students now have a streamlined path to several graduate degree programs at Assumption. Per the agreement between the two universities, gualified WPI psychology students are given admission priority to two of Assumption's prestigious master of arts degree programs: clinical counseling psychology and applied behavior analysis.

The Future is Collaborative

By cross-pollinating with other institutions, WPI will offer students an even richer academic experience—as well as open doors for the university as a whole. "This creates new pathways for students, and that's our first objective. But it also allows our faculty to find new ways to collaborate on research and teaching initiatives," said Ruiz. "We're always thinking interdisciplinarily and globally in the School of Arts & Sciences, so these partnerships come naturally."

Each of WPI's three new partnerships is built on the belief that the problems facing the worldwide community are too complex to be solved in silos. According to King, this awareness starts with students. "Today's students are much more complex beings, in terms of what they're asking for academically. Often, they're looking for hybrid approaches to learning that may not always be obvious," she said. "Higher education has long talked about being interdisciplinary and transdisciplinary—but no one institution can do it all. It's time that we see this as an opportunity to use collaboration as a resource."



Ghosts, Robots, and Monsters: Introducing **WPI's New Literary Journal**

A literary journal? At WPI? English professors Kate McIntyre, Joe Aguilar, and Michelle Ephraim give a resounding affirmative. The trio founded hex *literary* last year, with the help of Jim Monaco in the Academic Technology Center. Literary journals serve as important proving grounds for emerging writers, including as a venue for most writers' first publication. hex is an online publication featuring short stories of fewer than 1,000 words by professional writers from around the world. Each short story is speculative, with elements of science fiction, horror, and fantasy.

Before McIntyre and Aguilar's arrival at WPI, they worked for years at the internationally renowned journal The Missouri Review. The journal's publishing internship served as a model for a new course at WPI, which will allow WPI students to join the staff of *hex literary* for an academic term. Their coursework will include reading submissions, interviewing writers, planning literary events on campus, and helping to manage *hex*'s social media channels.

The editors see hex as a way to widen the tent of literature and draw in new perspectives—including those of WPI students. In particular, hex takes pride in seeking out works by BIPOC and LGBTQIA+ writers, writers with disabilities, and early career writers. The approach has resonated with readers and critics alike, as the journal has already raked in accolades. Three stories in hex were longlisted for the Wigleaf Top 50, and stories published in its pages were selected for reprint in Best Short Fiction 2023 and Best Microfiction 2023.

Supporting hex is easy: simply read the journal and spread the word. You can keep up with hex at hexliterary.com, or on Twitter and Instagram @hexliterary. The stories hex publishes take only a few minutes to read, but the characters, ideas, and images within will stay with you much longer.

• This project will be the first of its kind to nurture the *diversity of global knowledge* to inform both perspective and action, and to help *support the understanding that science, policy, culture, and education exist globally* and have the power and *potential to foster a better life experience for everyone* everywhere. » Rob Krueger,

editor-in-chief, The WPI Press



Robert Krueger, professor of human geography, head of the Social Science & Policy Studies department, and director of WPI's Institute of Science and Technology for Development (InSTeD), will serve as editor-in-chief of The WPI Press. He will be responsible for reviewing proposals, contracting with and overseeing contributing authors and editors, managing the peer-review process, and submitting completed materials to De Gruyter for production.



A New Partnership Spotlights the Diversity of Global Knowledge

WPI is partnering with Walter De Gruyter, Inc., an international independent academic publisher, to launch The WPI Press. The WPI Press will publish peer-reviewed print and electronic books on topics related to integrated global STEM. It will welcome proposals and manuscripts on topics from chemistry and physics to engineering, economics, culture, and policy—written by experts across the globe. Because The WPI Press will be open-access, it will draw from, and contribute to, knowledge, practice, and education available to everyone, regardless of their ability to pay.

Biotech leaders meet to discuss Central Massachusetts' growing role in workforce development

Cracking the Co The Dawn of Nuc

From Kendall Square to Kelley Square: Building the Innovation Pipeline

Cambridge has long been a destination for biotech in Massachusetts. More recently, life sciences research and funding have moved west, and industry leaders increasingly view the Worcester area as an extension of the Boston bioeconomy. In June 2023, Dean Jean King and the School of Arts and Sciences gathered civic, industry, and academic partners at WPI's Seaport campus for a gathering titled, "Next in Bio: Building the Discovery and Innovation Pipeline from Kendall Square to Kelley Square." WPI and its partners discussed industry-academic collaborations, technology transfer, and matchmaking—including how students and trainees can match with employers to support a vibrant biotech industry. As a contributor to the growing biotechnology ecosystem in Central Massachusetts, WPI was the perfect host for the event. WPI is focused on workforce development, has recruited top-notch researcher scientists, and is known for award-winning educational programs centered around experiential learning.

IMAGINE

WPI nature conferences



Cracking the Code: The Dawn of Nucleic Acid Medicines

r & Interim Dept. Head Biology & Biotechnology at WPI

@WPI

Dean Jean King and the School of Arts and Sciences is organizing the conference "Cracking the Code: The Dawn of Nucleic Acid Medicines" which will be hosted by WPI in October 2023. The university is partnered with Alnylam Pharmaceuticals, Moderna, UMass Chan Medical School, and Nature Conferences for this important event. The conference will explore the development of nucleicacid medicines, including recent clinical successes and upcoming challenges. By bringing together academics working on basic and translational research and their peers in thriving biotechnology companies and startups, the conference aims to foster dialogue and collaborations. The first day of the conference will also bring high school and college students to campus to discuss career paths for the next generation of leaders in biotechnology.

Advancing Women in Neuroscience

World Women in Neuroscience (WWN) is a consulting, mentoring, and networking body with the mission of promoting the career development of women neuroscientists across the globe through mentoring and networking activities. Co-created and co-chaired by Dean Jean King, WWN's activities address the disparities faced by women working in the neurosciences by promoting equality and addressing gender and minority bias. WWN opens doors for women neuroscientists, including those whom WPI trains through its neuroscience degree program. In so doing, WWN intends to improve the environment for career advancement in neuroscience for women throughout the world. For more information on WWN and its initiatives, visit worldwomenneuro.org.





Winners of President's IQP Awards

Each year, WPI students—typically in their junior year—complete an Interactive Qualifying Project (IQP) as part of their graduation requirements. Unlike an academic course, this nine-credit-hour requirement has students working in teams to tackle an issue that relates science, engineering, and technology to society. Not only do these in-depth IQPs teach valuable collaboration skills, they offer real-world contributions addressing problems locally and globally. Awarded annually, the President's IQP Award is given to student teams whose project work is determined to be outstanding in its focus on science, technology, and society. Hundreds of IQPs are completed each year, and 50 are submitted for consideration for the annual award; this number is then whittled down by a group of faculty members to five before two winners are chosen.



Senior Vice President and Provost Winston "Wole" Soboyejo with the 2022 IQP award winners: (from left) Tovah Lockwood, Anne McNamara, Alyssa Magaha, Megan Cyr, Kelsey Leach, Samuel Mather, John Winship, Alexander Demirs, and Hao Chen

Students:

Megan Cyr, Tovah Lockwood, Alyssa Magaha, and Anne McNamara

Advisors:

Holly Ault, adjunct teaching professor of integrative & global studies, and Stephan Sturm, associate professor of mathematical sciences

Conducted at the Bangkok, Thailand, Project Center, sponsored by Mrigadayavan Palace Foundation

IQP Project Spotlight: Restoring Mrigadayavan Palace

Over time, Thailand's Mrigadayavan Palace has faced the effects of deterioration on concrete structures, specifically on concrete columns, ceiling panels, and walkways. The goal of this project was to help rehabilitate the damaged concrete by exploring techniques to complete a restoration of the palace in advance of its 100th anniversary in 2024. Throughout the project, the team collected both qualitative and quantitative information through observation, fieldwork, research, and alternative case studies. The team developed a decision tree to determine which techniques achieved the desired outcome outlined by the foundation. Additionally, educational materials were produced to educate palace visitors about the historical restoration of concrete structures.

Mrigadayavan Palace in Cha-am, Thailand, is a former residence of King Vajiravudh, or Rama VI, who ruled Siam from 1910 to 1925.



IQP Project Spotlight: Indoor Navigation for Blind Individuals Using Computer Vision and Machine Learning

Navigating the world with impaired vision is a task difficult to imagine. To address this challenge, a team of student researchers created a smartphone app that would alleviate struggles encountered when traversing indoor spaces. The app was created by means of a machine-learning model named D2GO, which helps to detect objects with the use of a smartphone camera. Using D2GO, the IQP team developed the app to both detect and guide users around people and objects within an indoor space. This app will serve as a framework for a navigational aid that can be further developed by future R&D teams.



Students:

Hao Chen, Alexander Demirs, Kelsey Leach, Samuel Mather, and John Winship

Advisors:

Ivan Mardilovich, assistant teaching professor of chemistry & biochemistry, and Svetlana Nikitina, teaching professor of humanities & arts

Conducted at the Moscow, Russia, and Haifa, Israel, Project Center, sponsored by Financial University under the Government of the Russian Federation

Facing the Future with Resilience

Susanna Oppong '23, biology & biotechnology, served as the undergraduate student speaker for WPI's 2023 commencement ceremony. Oppong commended her fellow graduates for their determination throughout their WPI years. "They say resilience is born through experience and I truly believe that the resilience of our generation has come from the situations we have endured as students." said Oppong. "We have broken through the stereotypes given to our generation and created the definition of our destiny."

ALL EYES ON TOMORROW

A Year of Progress and Transitions at WPI

WPI Welcomes President Grace Wang

"Grace" Jinliu Wang, PhD, a materials scientist and highly accomplished leader in higher education, government, and industry, became WPI's 17th president in April 2023. She succeeds Laurie Leshin, who served as WPI president for eight years before joining NASA's Jet Propulsion Laboratory as director in May 2022. Winston "Wole" Soboyejo, WPI provost and senior vice president since 2019, served as interim president after Leshin's departure and until Wang's term began this spring. Wang is a member of the National Quantum Initiative Advisory Committee; the Government-University-Industry Research Roundtable at the National Academies of Sciences, Engineering, and Medicine; and the Board of Governors for the New York Academy of Sciences. She received her PhD in materials science and engineering at Northwestern University, holds seven U.S. patents, and has worked at IBM, the National Science Foundation, The State University of New York, and, most recently, The Ohio State University.





President Grace Wang greets students on National Student Athlete Day



G I look forward to a future where [...] the arts and technology are seen as complementary, rather than mutually exclusive. Laurie Mazza '23, MFA graduate

Assumption Enrolls First WPI Student Under New Agreement

Jada Hinds-Williams '23 (psychological science) is the first WPI student to enroll in the Assumption University clinical counseling psychology program under the new agreement between WPI and Assumption. Jada is a first-generation student born to Jamaican immigrants. As a WPI undergraduate, she was a program assistant for the Connections program, a Student Support Network leader, and a member of the National Society of Black Engineers, the Alliance, the Society of Women Engineers, Black Student Union, and African Student Association. She was also on the A&S Undergraduate Student Council.



WPI Awards First MFA Degree

WPI awarded its first Master of Fine Arts (MFA) degree in interactive media & game development to Laurie Mazza during WPI's 2023 commencement ceremony. Students in WPI's three-year MFA program take courses that are both studio- and classroom-based and complete a final project requiring them to show a game in a public setting. Mazza was advised by Farley Chery, associate professor of teaching in the Interactive Media & Game Development program.

New BS/MS Program in Learning Sciences and Technologies

WPI has launched a five-year degree program that allows students to pursue a Bachelor of Science (BS) degree in any major and a Master of Science (MS) degree in learning sciences & technologies, an interdisciplinary field focused on how students in kindergarten through grade 12 learn and the tools and techniques that make education more effective. The BS/MS option represents an expansion of WPI's learning sciences & technologies program, which launched in 2010 with MS and PhD degree options and concentrates on student learning in the fields of science, technology, engineering, mathematics (STEM), and English.

STRIVING FOR DIVERSITY, EQUITY, AND INCLUSION



Girls Talk Math

Girls Talk Math is an innovative day camp that demonstrates to high-school girls and nonbinary students from underrepresented communities that mathematics can play a role in any field they find interesting. Campers spend two weeks learning to solve advanced problems while podcasting and blogging about their work. The camp was co-founded by Francesca Bernardi, assistant professor of mathematical sciences and an expert on small-scale fluid mechanics and microfluidics. The WPI camp is funded with grants from the Mathematical Association of America's Tensor Women and Mathematics program and WPI's Women's Impact Network.



Dean Jean King at WBUR studios in Boston

Dean Jean King Named to the National Institutes of Health Council of Councils

Jean King, Peterson Family Dean of Arts & Sciences, has been selected to serve on the National Institutes of Health (NIH) Council of Councils. King joins 26 other council members who advise the NIH director on policies and activities of the Division of Program Coordination, Planning, and Strategic Initiatives (DPCPSI). The council's responsibilities include making recommendations on research that represents important areas of emerging scientific opportunities, rising public-health challenges, or knowledge gaps that deserve special emphasis or would otherwise benefit from strategic planning and coordination. Each council member also represents an institute or center that falls under the NIH. King has been appointed to the National Center for Complementary and Integrative Health (NCCIH) and will serve as a member of the council until October 2028.

•• I would like to bring the voice of all the communities I represent to the table—race, gender, WPI, and the state of Massachusetts—where there is a strong focus on biotechnology and health. Jean King, Peterson Family Dean of Arts & Sciences



Envisioning More Diversity and Mentorship in STEM

Jean King, Peterson Family Dean of Arts & Sciences, appeared on WBUR's Radio Boston to discuss her appointment to the National Institutes of Health Council of Councils. Dean King also discussed the future of STEM education and her vision for further diversifying the sciences in Massachusetts and increasing mentorship opportunities.

A THEME OF INTEGRATION FOR ARTS & SCIENCES WEEK

The School of Arts & Sciences held its fall Arts & Sciences Week in September 2022 with the theme of "Integration." In addition to a staff breakfast, faculty reception, undergraduate student lightning talks, and an ice-cream social, the school hosted three conversations on diversity, equity, and inclusion efforts in STEM, as well as the challenges faced by members of underrepresented groups.

"Can We Talk?"

The School of Arts & Sciences held a Critical Conversations forum on diversity in STEM with Kendall Moore, an award-winning documentary filmmaker and professor at the University of Rhode Island. The WPI community participated in a free viewing of Dr. Moore's film Can We Talk? Difficult Conversations with Underrepresented People of Color: Sense of Belonging and Obstacles to STEM Fields prior to the forum.



From left: Critical Conversations panelists Dean Jean King; Crystal Brown, assistant professor of social science & policy studies; Angela Rodriguez, assistant professor of social science & policy studies; documentary filmmaker Kendall Moore; Catherine Whittington, assistant professor of biomedical engineering; and Santiago Rivero '23



"Can We Talk?" panelists discuss the path to diversity in STEM fields



Filmmaker Kendall Moore speaks at Critical Conversations forum

"On Becoming Better Mentors & Advocates in STEM"

The fall 2022 A&S Week also featured Dr. Pamela Harris, associate professor in the Department of Mathematical Sciences at the University of Wisconsin at Milwaukee and co-founder and president of Lathisms: Latinx and Hispanics in the Mathematical Sciences, who conducted an engaging discussion on mentorship and advocacy within the STEM fields



Megan Giddings, author of The Women Could Fly



The Women Could Fly

Also during A&S Week, Megan Giddings, author of *The Women Could Fly*, participated in an author forum hosted by professors Michelle Ephraim and Kate McIntyre of the Department of Humanities and Arts. Dr. Giddings is an assistant professor at the University of Minnesota. Her first novel, *Lakewood*, was one of *New York Magazine's* top ten books of 2020 and an NPR "Best Book of 2020."



HEALTHY IN BODY, HEALTHY IN MIND

ENTER FOR

WELL-BEING

Center for Well-Being

WPI recently launched its Center for Well-Being, a groundbreaking model of wellness programming and support for the campus community. The center's opening represents the culmination of years of planning to centralize student support with an integrated approach that recognizes the connections between physical health, mental health, overall wellbeing, and academic and professional success. The new center is led by Paula Fitzpatrick, professor of psychology and a certified mindfulness meditation teacher, and will allow WPI to apply evidence-based practices that promote well-being for students and the broader campus community.

Cutting the ceremonial ribbon for WPI's new Center for Well-Being: from left, Paula Fitzpatrick, director of the Center for Well-Being; Lisa Pearlman, director of health services; Sabrina Rebecchi, director of student development & counseling; and Amy Curran, director of accessibility services



18 | PATHWAYS | OPENING DOORS

** The connection between mind, body, and spirit is undeniable, and the creation of the Center for Well-Being [...] demonstrates a thoughtful and holistic approach to more fully supporting the wellness of every individual in the WPI community. >>

Winston "Wole" Soboyejo, senior vice president and provost

• This research

represents a significant advance towards our objective of identifying patients at greatest risk of suicide and directing effective therapies at those individuals. **>>**

Jean King, Peterson Family Dean of Arts & Sciences A team of researchers and clinicians at WPI and Harvard Medical School-affiliated McLean Hospital is using artificial intelligence (AI) technology to better predict suicide risk in women who suffer from certain trauma-related disorders. The findings from their three-year study, published in November 2022 in the *European Journal* of Psychotraumatology, could offer clinicians a new way to quickly screen for warning signs. The assembled team—led by Dmitry Korkin, Harold L. Jurist '61 and Heather E. Jurist Dean's Professor of Computer Science at WPI; Lauren A. M. Lebois, director of McLean Hospital's Dissociative Disorders and Trauma Research Program; and Suhas Srinivasan, a WPI doctoral student—developed an algorithm that accurately predicted a history of suicide attempts in the patient group and identified subgroups of patients at greatest risk for suicidal thoughts and behaviors. This groundbreaking work was initiated by Harry Kasparian, a WPI '73 graduate, in memory of his daughter, Julia, who died by suicide in 2016.

Screening for Depression Through Voice Recordings

A group of researchers, led by Elke Rundensteiner, has developed a highly effective technology that screens voice recordings for signs that a speaker is depressed, an important advance that could alert physicians and other clinicians to people who need help. Rundensteiner is William B. Smith Dean's Professor of Computer Science and founding director of WPI's Data Science program. Audio-assisted bidirectional encoder representations from transformers (AudiBERT), the system developed by the researchers, leverages the words a speaker uses as well as the speaker's tone. AudiBERT builds on the researchers' previous work on the feasibility of using machine learning to analyze voice samples and other digital data from smartphones and social media and on audio-based depression screening as a way to address the societal problems of depression and limited mental health resources.

C This is a technology with the potential for a very high societal impact.
Elke Rundensteiner, William B. Smith Dean's Professor of Computer Science

In the Social Neuroscience of Affective Processes (SNAP) Lab at WPI, Richard Lopez, assistant professor of neuroscience and psychology, and his students, investigate psychological and neural mechanisms at play during social media use. Professor Lopez and his team focus on the contingencies of self-worth (CSW), a construct that describes situations when one's self-esteem fluctuates and is readily affected by additional factors, including the approval of others, relationship quality, and job performance. Since many of our interactions now take place on social media platforms, where content is constantly seen and evaluated by others, an open question is whether approval-related CSW, as experienced on social media, may in part underlie the mental-health crisis in young people. Recent findings from SNAP Lab studies indicate that those with higher CSW tied to their social media use experience poorer mental health, as represented by increased anxiety and depression symptoms. Next steps for the lab include developing longitudinal psychosocial interventions targeting CSW in order to change young people's relationship to social media and enhance health and well-being in daily life.

Using AI to Predict Suicide Risk

Social Media's Impact on Mental Health

MAGNE

In Conversation Program Features Grammy-winning Producer

Neal Cappellino '87, a member of WPI's Arts & Sciences Advisory Board and a well-known recording engineer and producer, spoke candidly to a small audience of WPI faculty, students, and staff about his career after graduating from WPI during the School of Arts & Sciences inaugural In Conversation program in October 2022. Interviewed by Kate Moncrief, professor and head of the Department of Humanities & Arts, Cappellino shared the inspiring lessons he learned on his path from WPI student to five-time Grammy Award winner.

Highlighting Women Authors for a Good Cause

Three noted authors discussed their writing processes and answered audience questions when WPI hosted the Worcester Women Authors event in April 2023. The panel discussion, moderated by Stephanie Pasha, assistant vice president of strategic donor outreach and board president for the Worcester Public Library, included authors Jenna Blum, Andrea Hairston, and Randy Susan Meyers. The event raised money for the Worcester YWCA's Domestic Violence Services Program, featured an auction of art by local artists, and honored the life and legacy of Ginger Navickas, a lifetime advocate for women and director of domestic violence services at YWCA Central Massachusetts.



From left: Authors Jenna Blum, Randy Susan Meyers, and Andrea Hairston discussed their processes in bringing a novel from a nascent idea to a finished work with Stephanie Pasha, assistant vice president of strategic donor outreach







The cast of WPI Theatre's production of Sense and Sensibility brought Jane Austen's work to life in December 2022.

WPI's academic theatre program produced two major shows during the 2022-23 academic year. During the fall semester, 34 students, three guest artists, and four faculty members collaborated to stage Kate Hamill's adaptation of Jane Austen's classic English novel Sense and Sensibility. Spring 2023 brought the 40th annual New Voices festival, featuring five original plays written, directed, designed, built, managed, and performed by 59 current WPI students. Across these two productions, WPI Theatre supported 21 practicum projects, four minor capstones, and one major qualifying project.



The cast of WPI Theatre's production of Sense and Sensibility brought Jane Austen's work to life in December 2022.



Select Books by WPI Faculty



ASSISTANT PROFESSOR OF

HUMANITIES & ARTS

Dante in Deutschland: An

Itinerary of Romantic Myth,

Bucknell University Press, 2022.



Holger Droessler ASSISTANT PROFESSOR OF **HUMANITIES & ARTS**

Coconut Colonialism: Workers and the Globalization of Samoa, Harvard University Press, 2022.



WPI professor and celebrated Shakespeare scholar Michelle Ephraim was awarded the 2023 Juniper Prize for Creative Nonfiction for her book GREEN WORLD: A Tragicomic Memoir of Love and Shakespeare. Awarded annually by University of Massachusetts Press, the Juniper Literary Prizes are a highly regarded showcase of distinctive and fresh voices in literature. The idea for GREEN WORLD, which will be published in the spring of 2024, began with an essay Ephraim wrote for The Washington Post about how only after her own father died could she appreciate Shakespeare's ability to capture the timeless shock of losing a parent. Ephraim is also co-author of Shakespeare, Not Stirred: Cocktails for Your Everyday Dramas, which she wrote with Caroline Bicks, the Stephen E. King Chair in Literature at the University of Maine.





The Sacrifice Zone, a novel by Roger Gottlieb, William B. Smith Professor of Humanities & Arts, received a Nautilus Book Award for fiction.



Mad Prairie, a story collection by Kate McIntyre, assistant professor of humanities & arts, was selected for the long list (top ten) for the PEN America/Robert W. Bingham Prize.



ASSOCIATE PROFESSOR OF TEACHING, HUMANITIES & ARTS

Geoffrey Pfeifer

The Politics of Desire: Deleuze, Foucault, and Psychoanalysis; edited by Agustin Columbo, Edward F. McGushin, and Geoffrey Pfeifer, Rowman and Littlefield International, 2022.





John Galante

ASSOCIATE PROFESSOR OF TEACHING, HUMANITIES & ARTS

On the Other Shore: The Atlantic World of Italians in South America during the Great War, University of Nebraska Press, 2022.



Jennifer McWeeny ASSOCIATE PROFESSOR OF **HUMANITIES & ARTS**

Feminist Philosophy of Mind; edited by Keya Maitra and Jennifer McWeeny, Oxford University Press, 2022.

Jennifer Rudolph

PROFESSOR OF **HUMANITIES & ARTS**

The China Ouestions 2: Critical Insights into US-China Relations; edited by Maria Adele Carrai, Jennifer Rudolph, and Michael Szonyi, Harvard University Press, 2022.



Brigitte Servatius

PROFESSOR OF MATHEMATICAL SCIENCES

&

Herman Servatius

ASSISTANT TEACHING PROFESSOR OF MATHEMATICAL SCIENCES

Discrete Mathematics (with Logic); with Martin Milanic, Elsevier Press, 2023.

INNOVATE

Improving Performance and Privacy of Augmented Reality

Tian Guo, assistant professor of computer science, has been awarded a prestigious \$657,776 CAREER Award from the National Science Foundation (NSF) to develop novel software techniques that will improve the performance and privacy of mobile augmented reality (AR) systems, an increasingly popular technology that superimposes computer-generated images on a user's view of the real world. Guo will focus her five-year project on edge computing, which involves processing data close to its physical source. She will develop techniques to efficiently manage edge servers that are close to AR users whose mobile devices are interacting with the servers. Two graduate students and several undergraduate students will assist Guo with her project, which builds on her previous NSF-funded research that pinpointed performance bottlenecks in mobile deep-learning applications and developed improvements.

C AR is an emerging interactive communication tool that creates powerful storytelling experiences, and it's important to me to contribute to this field by doing fundamental computer science research on the infrastructure behind augmented reality. Tian Guo, assistant professor of computer science



Expanding Representation in Video Games

Associate Professor of Teaching Farley Chery oversees rigsofcolor.com, a website containing a diverse set of characters with a wide range of racial and ethnic identities for game developers and animators to use in their work. Chery and a team of WPI undergraduate and graduate students are designing what the industry calls "rigs," the virtual bones and muscles used by animators to generate life and movement. The rigs are created through a multistep process that often involves motion capture and rotoscoping. There are presently more than 30 characters on the Rigs of Color website, which is made possible by funding and support from WPI as well as from the Public Interest Technology University Network.

C The goal is to have people of color included in representations of humanity, the real humanity, so that all the different types of people can be shown in every light and so that they can be seen in every story.
 Farley Chery, associate professor of teaching, interactive media and game development

Streamlining Drug Development

The National Institutes of Health has awarded Patricia Zhang Musacchio, assistant professor of chemistry & biochemistry, \$1,836,375 to develop a process that helps medicinal chemists synthesize new drugs by transforming a common chemical bond in small molecules. In this five-year project, Musacchio will use energy from visible light to break the strong bond that forms in molecules between carbon and hydrogen. Her process would give medicinal chemists a new and green way to customize the structure of small molecules to target disease in the body.

What my team does is very specialized, and we feel compelled to use our knowledge to make a difference. >> Patricia Zhang Musacchio, Leonard P. Kinnicutt Professor; assistant professor of chemistry & biochemistry



From left: Peder Pedersen, WPI emeritus professor of electrical and computer engineering; Bengisu Tulu, professor of information systems; Emmanuel Agu, professor of computer science; and Diane Strong, professor of information technology and data science and department head in The Business School



Detecting Wound Infections with Smartphones

A team led by WPI researcher Emmanuel Agu has been awarded \$2,458,174 by the National Institutes of Health (NIH) to develop a smartphone app that will use photographs, heat images, and algorithms to detect infections in the open wounds of patients at home. Agu is Harold L. Jurist '61 and Heather E. Jurist Dean's Professor in WPI's Department of Computer Science. The deep-infected wound detector (DIWD) will enable visiting nurses and other health workers in the field to rapidly identify patients who need specialized care for diabetic ulcers, pressure sores, incisions, trauma-related injuries, and other wounds. Dr. Giorgio Giatsidis, assistant professor of surgery at UMass Chan Medical School, also is a PI on the project. Other researchers involved are coinvestigators Bengisu Tulu and Diane Strong, professors in The Business School at WPI; and Clifford Lindsay, assistant professor of radiology at UMass Chan Medical School. In addition, the team will include three WPI graduate students and consultants Peder Pedersen, WPI emeritus professor of electrical and computer engineering; Dr. Raymond Dunn '78, professor of surgery at UMass Chan; and wound nurse Lorraine Loretz.

Creating Soil Moisture Maps for Farmers

Seyed (Reza) Zekavat, professor of physics and data science, and a team of researchers are bringing together drones, ground-penetrating radar, and artificial intelligence (AI) algorithms to develop a low-cost system that will rapidly map root-zone soil-moisture levels on large farms, ultimately helping farmers irrigate more efficiently. The \$1,172,896 project has launched with outdoor soil-mapping experiments at WPI's Gateway Park in Worcester and will run for three years, funded by a grant from the U.S. Department of Agriculture. Led by Zekavat, the research team will integrate drones and ground-penetrating radar to create rugged systems that can fly over farmland for at least 30 minutes to collect data about moisture in the top one to two feet of soil where roots grow. The researchers will also develop new software using AI algorithms to create a database for three-dimensional soil-moisture maps. Collaborators include Douglas Petkie, co-PI and professor and head of the WPI Department of Physics; researchers at Michigan Technological University and Michigan Tech Research Institute; Michigan state agriculture officials; and Michigan farmers.

> Soil moisture is critical to almost all ecosystem processes on land, so this research could have enormous scientific and economic benefits. >> Seyed Zekavat, professor of physics and data science

Professor to Serve as Division Director of NSF Division of Materials Research

Germano lannacchione, professor of physics, was appointed division director of the National Science Foundation's Division of Materials Research within the Directorate for Mathematical and Physical Sciences. lannacchione will lead a division investing in the discovery, prediction, and design of new materials, the development of materials scientists, and a better understanding of materials. A member of the WPI faculty since 1998, lannacchione served as head of the physics department from 2006 to 2016 and was founding director of the WPI Nuclear Science and Engineering Program, which he led from 2012 to 2017.

How We See and Interact with Information

Lane Harrison, associate professor of computer science, was awarded a \$747,283 NSF grant to build research infrastructure that will aid the research community in the study and evaluation of data visualizations. The three-year grant, part of a broader collaboration with the University of Utah and the University of Toronto, will facilitate the development of reVISit, a suite of web-based tools designed to accelerate and advance researchers' ability to conduct crowdsourced studies of how people interact with visualizations in various fields. Currently, the study of data visualizations is a laborintensive field that requires technical expertise to run experiments at scale. The NSF grant will allow Harrison, his partners, and WPI graduate students to explore ways to use the best-available technologiesincluding speech-to-text, video recording, and cloud infrastructures—to produce high-quality visualization studies outside of a traditional laboratory setting.

Project to Model Stability and Function of Protein Isoforms

Dmitry Korkin, Harold L. Jurist '61 and Heather E. Jurist Dean's Professor in the Department of Computer Science, has launched a four-year \$1.3 million bioinformatics project to develop computational tools that predict the stability and function of proteins produced as a result of alternative splicing of genetic code. This project, funded by the National Institutes of Health, probes a critical but poorly understood aspect of gene expression: focusing on the diverse production of proteins by a human gene and the effects of alternative gene splicing on these proteins.







OTHER MAJOR

Francesca Bernardi. National Science Foundation, "Collaborative Research: Pretreatment, Aging, Geometry, and Regeneration Effects on Spatiotemporal Ultrafiltration Fouling: An Experimental and Theoretical Investigation," **\$109,767**

Rose Bohrer. National Science Foundation, "Homotopical Logic Programs," \$164,646

Jennifer deWinter, Wen-Hua Du, Jennifer Rudolph, and Adam Powell. Department of Education, "Integrating Japan Area Studies into the WPI STEM Curricula," \$197,078

Vladimir Druskin and Mikhail Zaslavskiy. Air Force Office of Scientific Research, "Reduced Order Model Algorithms for SAR Imaging in Multi-Scattering Dispersive Environment," \$298,563

Loris Fichera. National Science Foundation, "CAREER: Next-Generation Surgical Robots for Energy-based Surgery," \$599,663

Ronald Grimm, Michel Barsoum, and Lyubov Titova. Department of the Army, "Effective Protection of Warfighters from Chemical Warfare Agents," \$1,669,998

Neil Heffernan. Department of Education, "Recovering from COVID-Learning-Loss with a Platform to Support Human Tutoring," **\$1,000,000**

Neil Heffernan. The Eric and Wendy Schmidt Fund for Strategic Innovation, "Cyberinfrastructure for Learning Engineering Research & Development," **\$150,000**

Neil Heffernan, Li Cheng, and Jaffe Foundation. "Leveraging Artificial Intelligence to Analyze Students' Math Work Uploaded in a Digital Platform," **\$120,000**

Patricia Musacchio. Pfizer Inc., U.S. Pharmaceuticals Group, "Enabling Late-Stage Cyanations, Amination & Sulfonaminations of Aliphatic Csp3–H Bonds," **\$125,000**

Inna Nechipurenko. Hood (Charles H.) Foundation, "Role of Heterotrimeric G-proteins in Cilia Assembly and Pathogenesis of Neurodevelopmental Disorders," **\$200,000**

Inna Nechipurenko. National Institutes of Health/NIH/DHHS, "Function and Regulation of Heterotrimeric G-proteins in Ciliogenesis and Pathobiology of Neurodevelopmental Disorders," **\$363,984**

Markus Nemitz and Jing Xiao. Department of the Army, "UAV Liquid Hydrogen Autonomous Refueling System," \$907,480

Erin R. Ottmar, Avery H. Closser, Caroline Hornburg, and Ji-Eun Lee. National Science Foundation, "From Sight to Insights: Examining Effects of Perceptual Cues on Students' Mathematical Reasoning and Learning," **\$667,617**

Randy C. Paffenroth. Defense Advanced Research Projects Agency, "Messina: Enabling Confidence," \$122,834

Thelge B. Peiris, Samuel Walcott, Randy C Paffenroth, Fangfang Wang, Francesca Bernardi, Stephan Sturm, Vadim V Yakovlev, Jian Zou, Burt S Tilley, and Marcel Y Blais. National Science Foundation, "REU Site: Research Experiences for Undergraduates in Industrial Mathematics and Statistics," \$412,937

RESEARCH GRANTS

Douglas T. Petkie. State University of New York Polytechnic Institute, "Wideband Ultralow Loss and Fluorescence Nitride-Optimized Sensors Platform," **\$299,970**

Douglas T. Petkie, Raisa Trubko, Katherine C. Chen, and James Eakin. Department of the Navy, "Integrated Photonics for Sustained Operations," **\$450,000**

Carlo Pinciroli, National Aeronautics & Space Administration, "ASTER Phase II," \$305,877

Samuel Walcott. National Science Foundation, "IntBIO: Linking Genome to Phenome to Understand Function of an Ancient Muscle Myosin in Complex Heterogeneous Systems," **\$276,208**

Gu Wang. National Science Foundation, "Optimal Contracts and Optimal Stopping," \$260,000

Jacob R. Whitehill. The Eric and Wendy Schmidt Fund for Strategic Innovation, "Hybrid Human-Agent Tutoring Platform to Accelerate Middle School Math Achievement for Low-Income Students," **\$573,553**

Haichong Zhang. National Institutes of Health/NIH/DHHS, "Automatic Wide-Field Optical Coherence Tomography for Assessment of Transplant Kidney Viability," \$493,446



IMPACT

Sustainable Sanitation, Education, and **Economic Initiatives in Ethiopia**

WPI students, researchers, and their partners are working to bring more adequate and dignified sanitation to Ethiopia at a reasonable cost. WPI's Institute of Science and Technology for Development (InSTeD) received nearly \$900,000 through a five-year grant awarded by the Bureau of Humanitarian Assistance at the United States Agency for International Development and by Catholic Relief Services. The grant is in support of a sustainable educational experience, as well as improved design and implementation of the WPI MicroFlush toilet, a compost toilet that uses hand-washing water to flush. The sanitation project is part of InSTeD's new Stephen J. Mecca Lab for Sustainable Development. The Mecca Lab brings together researchers from many disciplines and departments at WPI and at other institutions.







•• The really exciting part of the project is the *partnership with the* local community, which *is designed to last well beyond the completion* of the team's work. **>>**

Rob Krueger, director of InSTeD and head of social science & policy studies

Uncovering New Details of SARS-CoV-2 Structure

A new study led by Dmitry Korkin, Harold L. Jurist '61 and Heather E. Jurist Dean's Professor in the Department of Computer Science, brings into sharper focus the structural details of the COVID-19 virus, revealing an elliptical shape that changes as it moves in the body. The discovery, which could lead to new antiviral therapies for the disease and quicker development of vaccines, is featured in the April 2023 edition of Structure, a peer-reviewed structural-biology journal. Feeding genetic sequencing information and massive amounts of real-world data about the pandemic virus into a supercomputer in Texas, Korkin and his team, working in partnership with a group led by Siewert-Jan Marrink at the University of Groningen, Netherlands, produced a computational model of the virus's outer shell. The model represents "near atomistic detail" that has, until now, been beyond the reach of even the most powerful microscopes and imaging techniques. The new findings were three years in the making and built upon Korkin's work in the early days of the pandemic to provide the first 3D roadmap of the virus based on genetic sequence information from the first isolated strain in China.

> " This is critical knowledge we need to fight future pandemics." Dmitry Korkin, Harold L. Jurist '61 and Heather E. Jurist Dean's Professor



Suzanne Scarlata, Richard Whitcomb Professor of chemistry & biochemistry; and Nima Rahbar, associate professor of civil, environmental, & architectural engineering



Developing "Living" Low-Cost Construction Material

Suzanne Scarlata, Richard Whitcomb Professor of chemistry & biochemistry, and Nima Rahbar, associate professor of civil, environmental, & architectural engineering, have received \$692,386 from the National Science Foundation to improve and develop new functions for their enzymatic construction material (ECM), a "living," low-cost, negative-emission construction material they created to address one of the largest contributors to climate change, concrete, by providing a pathway to repair or even replace traditional concrete in the future. This new funding will also allow them to explore new avenues for ECM's use, including repairing cracks in certain types of glass, such as eyeglass lenses, cell phone screens, and car windshields, and develop a program to educate diverse populations of underprivileged girls in both Worcester and Africa about engineering and construction. The researchers plan to partner with organizations in Worcester, including the local chapter of Girls Inc., to create summer programs and after-school programs in which girls will design a model building, make a mold for it using 3D printing, and build the structure out of ECM. Scarlata and Rahba are also collaborating with the African University of Science and Technology to host visiting graduate students at WPI and conduct additional summer programs for this group. •• Just as important as getting kids excited about STEM, we need to encourage them to dream big and to surround themselves with people that encourage and nurture that dream. >> Winston "Wole" Soboyejo, senior vice president and provost

WPI Launches OpenSTEM Initiative

WPI is making high-quality STEM education accessible worldwide through its OpenSTEM online tutorials, resources, and community support, as well as affordable and sustainable materials and educational technologies. Through OpenSTEM, WPI will engage a larger and more diverse population of young people. OpenSTEM products are adapted to meet different cultures and existing educational infrastructures. Its inaugural project, Experiential Robotics Platform (XRP), is laying the groundwork to advance global STEM education. The project will grant more young people access to hands-on robotics education and STEM pipeline programs, including those with affordable robot kits, online videos and tutorials, and an online learning-discussion platform.



•• There is so much artistic talent in the gaming world right here in the Northeast, it just made sense to celebrate, collaborate, and have some friendly competition. >>

Tate Donnelly '24, Interactive Media & Game Development

Reviving the JoyArt Game Competition

A WPI IQP team revived JoyArt, an intercollegiate student game art competition previously organized by Becker College and shuttered due to COVID and the college's closure. JoyArt is judged by artists in the local videogame industry. The competition allows student game artists to build their portfolios, display their work, and network

with industry professionals. The revived competition received more than 200 submissions from 12 schools, brought in five industry professionals to judge the event, and provided portfolio reviews for game art students by artists from Boston's Demiurge Studios.

Expanding Opportunities for Women in STEM

WPI has been awarded \$276,000 from the Henry Luce Foundation to support women entering doctoral programs in computer science and physics, two areas in which women are significantly underrepresented. The grant, part of the Clare Boothe Luce Program, will fund two graduate fellowships per year for two years. The women selected as Luce Fellows will receive a unique model of mentorship. By connecting with a community of accomplished female faculty in the fields of computer science and physics, mentors will help facilitate each student's individual academic and professional success.

> We are a university that continues to be a vibrant academic and research environment with a campus culture that says women can—and do—belong in STEM. >> Jean King, Peterson Family Dean of Arts & Sciences

Mentoring the Next Generation of A&S Faculty

Jean King, Peterson Family Dean of Arts & Sciences, meets regularly with A&S junior faculty to provide mentoring support and build a community of junior researchers and scholars. Participating faculty present lightning talks on their work and join in presentations and discussions related to their professional journeys.



Dean King and participants from a recent A&S Junior Faculty Mentoring program. From left: Kate Moncrief, Paris Fletcher Distinguished Professor of Humanities and department head; Dean Jean King; Rob Krueger, professor of social science & policy studies and department head; Ben Nephew, assistant research professor of biology & biotechnology; Snehalata Kadam, assistant teaching professor; Ali Yousefi, assistant professor of computer science; Raisa Trubko, assistant professor of physics; Fabricio Murai, assistant professor of computer & data science; Carolina Ruiz, associate dean of arts & sciences; Kun-Ta Wu, assistant professor of physics; Kate McIntyre, assistant professor of humanities & arts; Joe Aguilar, assistant professor of neuroscience & psychology; and Laura Eckelman, associate professor of arts, communications, & humanities



INTEGRATE

Trusting Inekwe, PhD candidate, computer science

Arts & Sciences "Day of Excellence"

The School of Arts & Sciences held a "Day of Scholarship & Excellence" (DOSE), featuring lightning talks from A&S faculty and graduate students, a graduate student poster session, and a networking reception. DOSE spotlights the cutting-edge research and scholarship that our faculty and graduate students conduct across disciplines. Faculty talks explored the following topics: Gamifying the STEM Classroom; How (and Why) to Teach Without Grades; Artificial Intelligence and the Future of Humans; Musical Machines: Finding Creativity Through Robotics; and Genetically Modified Organisms for Global Good. In addition, A&S graduate students conducted lightning talks and presented posters on their research.

Ben Gobler, BS/MS candidate, applied mathematics



Craig Shue, associate professor of computer science and department head, speaks with PhD student Jacob Feinstein



Data science PhD student Marcela Vasconcellos receives feedback for her "Day of Scholarship & Excellence" presentation

Exploring the Impact of ChatGPT

Since its launch in November 2022, the large-language artificial intelligence (AI) platform known as ChatGPT has amassed more than 100 million users and sparked a worldwide debate about the lines between AI and human intelligence. Within weeks of ChatGPT's arrival, the School of Arts & Sciences convened a Critical Conversations forum to explore the possibilities and pitfalls of the technology. The panel was moderated by Craig Shue, head of the Department of Computer Science; and featured Xiaozhong Liu, Jacob R. Whitehill, and Gillian M. Smith, associate professors of computer science; Kenny Ching, assistant professor at The Business School; and Yunus Doğan Telliel, assistant professor of anthropology & rhetoric.



From left: Lisa Stoddard, associate professor of teaching; Tony Laing, assistant vice president for diversity, equity, inclusion, and belonging; Mia-Kay Fuller, assistant director for gender equity and sexuality; Zoe Reidinger, associate teaching professor of biomedical engineering; Al Green '12, ministry director of the LGBT Asylum Task Force; and Theron Howe '23





From left: Dean Jean King; Xiaozhong Liu, associate professor of computer science; Kenny Ching, assistant professor of The Business School; WPI President Grace Wang; Gillian Smith, director of interactive media & game development; Jacob Whitehill, associate professor of computer science; Craig Shue, professor of computer science and department head; and Yunus Doğan Telliel, assistant professor of anthropology & rhetoric

LGBTQIA+: Enhancing Community and Building Belonging

The School of Arts & Sciences hosted a standing-room-only Critical Conversations forum in March 2023 that addressed issues of sexuality, identity, and belonging. Moderator Lisa Stoddard, associate professor of teaching in The Global School, guided a lively discussion with WPI faculty, staff, students, and alumni on how the WPI community can better support queer students. Panelists included Mia-Kay Fuller, assistant director for gender equity and sexuality; Al Green '12, ministry director of the LGBT Asylum Task Force; civil engineering major Theron Howe '23; Tony Laing, assistant vice president for diversity, equity, inclusion, and belonging; and Zoe Reidinger, associate teaching professor in the Department of Biomedical Engineering.

ARTS & SCIENCES

FACULTY HONORS

The following faculty from the School of Arts & Sciences were recognized at the 2023 Annual Faculty Awards for remarkable contributions to WPI, its students, and community.



Chair's Exemplary Faculty Prize

Elizabeth Ryder, professor in the Department of Biology & Biotechnology, was recognized for excellence in all areas of faculty performance, including teaching, research and scholarship, service, and advising.



Trustees' Award for Outstanding Teaching

Jon Abraham, professor of practice in the Department of Mathematical Sciences, was recognized for demonstrating excellence in teaching coupled with outstanding professional contributions.

Trustees' Award for Outstanding Research and Creative Scholarship

Jeanine Skorinko and Frederick Bianchi received the Trustees' Award for Outstanding Research and Creative Scholarship, which honors distinguished teaching, research and creative scholarship, academic advising, and service to the community. Skorinko is a professor in the Department of Social Science & Policy Studies; Bianchi is a professor in the Department of Humanities & Arts.



Jeanine Skorinko, professor of psychology



Frederick Bianchi, professor of music

AND AWARDS

Romeo L. Moruzzi Young Faculty Award for Innovation in Undergraduate Education

Angela Rodriguez, **Rebecca Moody**, and **Lindsay Greer Davis** received the Romeo L. Moruzzi Young Faculty Award for innovation in undergraduate education. The award is named for a former professor of electrical engineering and a founder of the WPI Plan. These early-career faculty members are recognized for specific innovations or improvements to undergraduate education at WPI. Rodriguez is an assistant professor in the Department of Social Science & Policy Studies, Moody serves as an assistant teaching professor and Davis as an assistant professor of teaching in the Department of Humanities & Arts.





Angela Rodriguez, assistant professor of social science & policy studies

Rebecca Moody, assistant teaching professor of humanities & arts

Leonard P. Kinnicutt Professorship

Patricia Zhang Musacchio, assistant professor of chemistry, has been named to the Leonard P. Kinnicutt Professorship for a three-year appointment. Established by George C. Gordon to honor Kinnicutt, the appointment encourages the professional development of aspiring new faculty, with a preference for those who study chemistry. A member of the WPI faculty since 2019, Musacchio focuses her research on developing new chemical technologies for the design and synthesis of drug molecules, chemotherapeutics, and biologics.

• Professor Musacchio's work is truly leadingedge, and it's a pleasure to recognize and reward her in this meaningful way. >>

Anita Mattson, professor of chemistry & biochemistry and interim department head



Lindsay Greer Davis, assistant professor of teaching of humanities & arts





of mathematical sciences, received two awards for excellence from the National Agricultural Statistics Service, part of the United States Department of Agriculture: a team award for the Cash-Rent Team and an individual Cooperator of the Year Award for outstanding contributions in service to the research and development division.



Stephan Sturm,

associate professor of mathematical sciences, received a conference grant from the Society for Industrial and **Applied Mathematics** and co-organized the 2022 Gene Golub SIAM Summer School on **Financial Analytics.**





Tian Guo, assistant professor of computer science, received the 2022 Outstanding Achievement by a Young Alum Award from the Manning College of Information and Computer Sciences, UMass Amherst.



OTHER NOTABLE



John Galante, associate

professor of teaching of

humanities & arts, was

committee of the New

American Studies.

England Council of Latin

appointed to the executive

Mayer Humi, professor of mathematical sciences, was listed in the 2022 Marquis Who's Who in America.



Rudra Kafle, associate professor of teaching of physics, was appointed to the scientific committee and named division chair of Physics Education Research in the Association of Nepali Physicists in America.

Kyumin Lee, associate professor of computer science, was named an Air Force Research Lab Faculty Fellow. He also received an honorable mention for the Test of Time Award from the International ACM SIGIR Conference on Research and Development in Information Retrieval



David Medich, associate professor of physics, was elected a fellow of the Health Physics Society.





ACHIEVEMENTS

Chun-Kit Ngan, assistant teaching professor of data science, was elected a fellow for the Microsoft Visiting Data Science Education Program.





Burt Tilley, professor of mathematical sciences, organized the 38th annual Mathematical Problems in Industry workshop held at WPI in June 2022.

STUDENT ACHIEVEMENTS

A&S Undergraduate Summer Research Programs

The School of Arts & Sciences supports undergrads who conduct summer research through a variety of fellowship programs.



A&S summer research fellows share their work during an annual summer research showcase. Pictured are the 2022 summer research fellows. From left: Thomas Kneeland '24, Allison Rozear '24, Rachel Swanson '23, Lauren Abraham '24, Daniel Larrabee '23, Cole Parks '24, and Abigail Boafo '24.

AND CONTRIBUTIONS

2022 Summer Training in Arts & Sciences Research (STAR)

STAR Fellowships are made possible through the generosity of WPI's Arts & Sciences Advisory Board and allow A&S undergraduate students to conduct summer research projects with a faculty advisor.





"Isolation of Soil Bacteria and Co-Culturing with **Genetically Engineered** Pseudomonas Putida"

Lauren Abraham '24 biology & biotechnology

Advisor: Natalie Farny, assistant professor of biology & biotechnology



"The Black Student Experience in Colleges/ Universities and Its Relation to WPI"

Abigail Boafo '24 science, technology & policy; and computer science

Advisors:

Crystal Brown, assistant professor of social science & policy studies, and Hermine Vedogbeton, assistant research professor of social science & policy studies





Thomas Kneeland '24 computer science and music

Advisor: Ben Young, jazz history database director



"How do Robot Swarms Learn Collective Transport?"

Cole Parks '24 robotics engineering and computer science

Advisor:

Carlo Pinciroli, assistant professor of robotics engineering



"Machine-Learning Optimization of Microwave Plasma Parameters"

Camille Williams '25 mathematical sciences and physics

Advisor: Vadim Yakovlev, associate research professor of mathematical sciences



"Development of a C-H Acylation Reaction in Batch and in Flow"

Rachel Swanson '23 chemistry and chemical engineering

Advisor: Patricia Zhang Musacchio, assistant professor of chemistry



"Identifying Targets of Putative Small **Regulatory RNAs** in Mycobacterium Smegmatis"

Daniel Larrabee '23 bioinformatics & computational biology

Advisor: Scarlet Shell, associate professor of biology & biotechnology



2022 DraftKings Fellowship

The 2022-23 DraftKings Fellowship was made possible by a generous gift from the DraftKings corporation to support work that elevates the impact of advanced research in information science and technology.



"Modeling Diversity: **Rigs of Color**"

Sydney Gardner '23 interactive media & game development

Advisor: Farley Chery, associate professor of teaching of interactive media & game development



"RI/FoW: Research Impact for the Future of Work"

> Allison Rozear '24 human & machine communications

Advisor: Yunus Doğan Telliel, assistant professor of anthropology & rhetoric



2022 Neuroscience Fellowship

Through support from generous donors, the School of Arts & Sciences is able to support undergraduate students who conduct summer research in the area of neuroscience.



Advisor: Ben Nephew, assistant research professor in biology & biotechnology

Julia Kasparian Endowed Scholarship (2022-2023)

Harry A. Kasparian '73 established the Julia Kasparian Endowed Scholarship in memory of his daughter. The scholarship honors and celebrates Julia's memory by supporting female students studying neuroscience, with the hope that they may go on to make discoveries and develop treatments for mental illness. The 2022-23 Julia Kasparian Endowed Scholarship was awarded to Lorena Nunes '24, psychology.



«Receiving this scholarship was an honor and a blessing to me. It has deepened my interest in the research field, especially regarding mental health. This scholarship has also given me amazing opportunities to connect with great professors and get involved with more research on campus. *I* am immensely grateful to have received this scholarship, which helped me further my studies to go after my dream career in the psychological/neuroscience field. >>

Lorena Nunes '24



2022 David LaPre Summer Research Fellowship

The David Lapre Summer Research Fellowship provides support to undergraduate students undertaking summer research in the lab of a faculty member in the Department of Chemistry & Biochemistry or Department of Biology & Biotechnology.



Aashi Akare '25 biology & biotechnology

Advisor: Natalie Farny, assistant professor of biology & biotechnology

Conference Awards Support Graduate Student Development

The School of Arts & Sciences recognizes the importance of conference participation for the professional development of its graduate students. The school provides awards to graduate students to support attendance at research conferences. These awards, funded by the A&S Advisory Board, provide much needed financial assistance to defray the cost of attendance. This past year, more than 30 students were supported in traveling to conferences on topics including mathematical finance, photonics, cell biology, and data mining—with conference locations including Australia, Japan, the Netherlands, and several U.S. locations.



Anna Hickman '23 biochemistry

Advisor: Carissa Olsen, assistant professor of chemistry & biochemistry



Jason White '23 chemistry

Advisor: Shawn Burdette, professor of chemistry & biochemistry

OTHER NOTABLE

Oluseun Olulana, a PhD student in data science, received a 2022–23 International Doctoral Degree Fellowship from the American Association of University Women. Olulana was one of 320 individuals or organizations receiving a total of \$6 million in grants or fellowships. The funding will enable her and the other recipients to pursue academic work and lead innovative community projects to empower women and girls.

Opeyemi Isaac Ibitoye, a PhD student in biology & biotechnology, was spotlighted by the Boston Bacterial Meeting for Black History Month. Ibitoye is a second-year PhD student from Nigeria who works in the laboratory of Scarlet Shell, associate professor of biology & biotechnology. His research uncovers the mechanisms that allow mycobacterium to stabilize their mRNA under stress. Ibitoye is also a teaching assistant for the Department of Biology & Biotechnology and participates as a mentor, including to students at Kwara State University in Nigeria.

Emily Bendremer '23 was awarded the 2022 New England Psychological Association Honorary Undergraduate Scholar Award for her excellence in research as an undergraduate. Bendremer, who will attend Fordham Law School in fall 2023, presented her MQP at the 2022 New England Psychological Association conference hosted at WPI.

Alex Bouchard '23 received the 2022-23 Provost's MQP award. Alex, who was advised by Joe Duffy, associate professor of biology & biotechnology, will pursue a doctoral degree at UMass Chan Medical School

Stephen Price '23, BS/MS in computer science, was a Salisbury Prize recipient and CRA Outstanding Undergraduate Researcher honorable mention. The Salisbury Prize is WPI's oldest award and honors graduating seniors who have made truly exceptional contributions inside and outside of WPI.



Amanda Holbrook '23, biochemistry, received an honorable mention for the Wilmer L. and Margaret M. Kranich Prize, which recognizes a science, engineering, or management major who best integrates the humanities and arts into their undergraduate experience.



Ben Gobler '23 graduated in May with both a BS in mathematical sciences and an MS in applied mathematics. Ben was WPI's top scorer in the William Lowell Putnam Mathematical Competition, was the winner of the Salisbury Prize in Mathematical Sciences at WPI, and was awarded the Richard V. Andree Prize for the best-written work appearing in the Pi Mu Epsilon Journal in 2022.

STUDENT ACCOMPLISHMENTS

Creative Writing Club Judges Poetry Contest

WPI's Creative Writing Club participated in the National **Baseball Poetry Festival** at Polar Park by judging entries from K-12 students for the Worcester-wide poetry contest. Held during April's National Poetry Month, the festival is intended to serve as a linchpin celebration of the world's oldest art form.



WPI held its second annual WPI's Go(a)T Talent Show featuring students and faculty in March 2023. The talent show is sponsored by the Department of Humanities & Arts, the Office of Student Affairs, the Department of Engineering, and the Center for Well-Being.



Go(a)T Talent Show

ARTS & SCIENCES STUDENT ADVISORY COUNCILS

The A&S Student Advisory Councils advise the dean on initiatives that have a direct impact on students, including those that increase the visibility of the arts and sciences at WPI.

A&S UNDERGRADUATE ADVISORY COUNCIL

Isaac Benjamin '24 physics

Gabriella Guzman-Jerry '24 bioinformatics & computational biology

> Jada Hinds-Williams '23 social sciences & policy studies

Aruzhan Koshkarova '23 data science

Alana Lue Chee Lip '24 biology & biotechnology

Camille McDonnell '23 physics

Robbie Oleynick '24 computer science

Mira Plante '24 computer science

Schuyler (Skye) Rae Pritchard '24 interactive media & game development

> Catherine Reynolds '23 chemistry & biochemistry

Maceo Richards '23 data science

Natalie Tierney '24 mathematical sciences



Jezabel Aleyda Aponte Figueroa social sciences & policy studies

> **Jake Bouchard** physics

Darren Cole interactive media & game development

> **Geri Dimas** data science

Sabine Hahn biology & biotechnology



The 2022-23 Arts & Sciences Undergraduate and Graduate Student Advisory Councils (pictured with Associate Dean Carolina Ruiz, Dean Jean King, and A&S staff member Alicia Briggs)

A&S GRADUATE ADVISORY COUNCIL

Trusting Inekwe computer science

Ashley Lockwood mathematical sciences

> **Gabrielle Plainte** neuroscience

Maddie Rennie chemistry & biochemistry

Sarah Weintraub bioinformatics & computational biology

WHO WE ARE

DEAN'S OFFICE





Carolina Ruiz ASSOCIATE DEAN OF ARTS & SCIENCES





Rebecca Ouellette DIRECTOR OF OPERATIONS



Carrie West SENIOR EXECUTIVE ADMINISTRATOR



Alicia Briggs Administrative Assistant



DEPARTMENT HEADS



Rob Krueger SOCIAL SCIENCE & POLICY STUDIES

Anita Mattson CHEMISTRY & BIOCHEMISTRY



Douglas Petkie PHYSICS

Reeta Rao BIOLOGY & BIOTECHNOLOGY



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Kathryn Moncrief HUMANITIES & ARTS

Sarah Olson MATHEMATICAL SCIENCES

Craig Shue COMPUTER SCIENCE

Jing Xiao ROBOTICS ENGINEERING

2023-24 NEW FULL-TIME FACULTY



Floyd Brownewell PROFESSOR OF PRACTICE BIOLOGY & BIOTECHNOLOGY

Areas of interest: interface between organic chemistry and biological function; synthetically modified amino acids and nucleic acids and incorporation of those structures within biopolymers



Raúl Orduña Picón

ASSISTANT TEACHING PROFESSOR CHEMISTRY & BIOCHEMISTRY

Areas of interest: sociocultural approaches to chemistry teaching and learning, culturally relevant pedagogy, formative assessment, conceptual profile theory, and chemistry capital

ASSOCIATE PROFESSOR COMPUTER SCIENCE

Areas of interest:

network and distributed system security, AI security with focus on intrusion detection, vulnerability analysis, secure programming, and cybersecurity education



Jun Dai



Areas of interest: systems programming, performance engineering, cybersecurity, music and sound engineering, e-bike design, and solar-power systems







Kevin Lewis PROFESSIONAL WRITING

PROGRAM DIRECTORS (2022-2023)

Ryan Madan WRITING CENTER



Peter Hansen

INTERNATIONAL &

GLOBAL STUDIES

Michael Radzicki SYSTEM DYNAMICS



Elke Rundensteiner

DATA

SCIENCE

Neil Heffernan

LEARNING SCIENCES

& TECHNOLOGIES

Elizabeth Ryder BIOINFORMATICS & COMPUTATIONAL BIOLOGY Jeanine Skorinko PSYCHOLOGICAL & COGNITIVE SCIENCE



Gillian Smith INTERACTIVE MEDIA & GAME DEVELOPMENT



Jagan Srinivasan NEUROSCIENCE





Shane McInally ASSISTANT PROFESSOR BIOLOGY & BIOTECHNOLOGY

Areas of interest: molecular and physical mechanisms that cells use to control and scale the size of their internal structures with distinct aspects of their geometry



Hanmeng (Harmony) Zhan

ASSISTANT PROFESSOR COMPUTER SCIENCE

Areas of interest: applications of algebraic graph theory to quantum computing and quantum information

Xiaoyan (Sherry) Sun

ASSOCIATE PROFESSOR COMPUTER SCIENCE

Areas of interest: cybersecurity, AI-related security, and digital forensics





Yu-Shan (Sami) Sun

ASSISTANT TEACHING PROFESSOR COMPUTER SCIENCE

Areas of interest:

computer science education and student learning, software engineering, formal specification and automated reasoning, web software and tool design



Andre Nachbin

HAROLD J. GAY PROFESSOR MATHEMATICAL SCIENCES

Areas of interest:

surface-water waves and their interaction with variable-bottom topographies, as well as on wavedroplet systems and its quantum analogues



Villagrán Olivas POSTDOCTORAL SCHOLAR MATHEMATICAL SCIENCES

algebraic combinatorics/ computational tools, and applications of combinatorics to other areas of mathematics

Romain Murenzi PROFESSOR

Wavelets, Groups, and Coherent States: Links Between Quantum Mechanics and Signal Processing in One and More Dimensions; science technology and innovation policy, science for society, science diplomacy, and science advice to governments



environment, regenerative







PHYSICS

Areas of interest:



Achirri Ismael ASSISTANT TEACHING PROFESSOR SOCIAL SCIENCE & POLICY STUDIES Areas of interest:





sustainability, cross-cultural design, and development

William McCarthy ASSISTANT PROFESSOR PHYSICS

Areas of interest: plasma physics with fusion energy applications and medical imaging, with the common thread of nuclear science



David Ibbett

VISITING ASSISTANT TEACHING PROFESSOR OF MUSIC HUMANITIES & ARTS

Areas of interest: combining music and science in live performance, electro-symphonic music (fusion of classical and

electronic styles that interweaves influences from, symphonies, pop, rock, and electronica)



Karen Stewart

ASSISTANT TEACHING PROFESSOR INTERACTIVE MEDIA & GAME DEVELOPMENT

Areas of interest: visual narratives, content-creator communities, and arts-based collaboration and learning

Lucy Caplan ASSISTANT PROFESSOR OF MUSIC HUMANITIES & ARTS Areas of interest:

African American music, opera and musical theater, and cultural criticism





R. Maxwell Racine VISITING ASSISTANT TEACHING PROFESSOR OF PHILOSOPHY & RELIGION **HUMANITIES & ARTS**

Areas of interest: interdisciplinary approach to philosophy, examining the way that stories in life and literature can be sources of understanding; the benefits and pitfalls of narrative understanding in contexts of structural oppression





Areas of interest: classical and quantum physics, electroacoustic music, sound design and spatialization, data sonification, field recording, and software development





Alexander Herbert

PROFESSOR OF HISTORY HUMANITIES & ARTS

interrelations of science,

environmental change in the

late USSR; the intersection of

popular culture and education

Areas of interest:

technology, and

VISITING ASSISTANT TEACHING



Sarah Lucie VISITING ASSISTANT TEACHING PROFESSOR OF MUSIC HUMANITIES & ARTS

Roee Shraga ASSISTANT PROFESSOR

DATA SCIENCE AND COMPUTER SCIENCE

Areas of interest:

information retrieval

Database systems, data discovery

and integration, applied machine/

loop, human-AI collaboration, and

deep learning, human-in-the-

Areas of interest: contemporary performance and digital art through new materialism, ecocritical theory, and posthumanism



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Dana Ferranti

ASSISTANT RESEARCH PROFESSOR MATHEMATICAL SCIENCES

Areas of interest:

mathematical modeling and computational methods for steady and unsteady Stokes flows with an emphasis on biological applications



Yonatan Ashenafi

POSTDOCTORAL SCHOLAR MATHEMATICAL SCIENCES

Areas of interest:

mathematical study of mobility; aspects of microscopic life via stochastic modeling, asymptotic analysis, and simulations

Patricia Agupusi

ASSISTANT PROFESSOR SOCIAL SCIENCE & POLICY STUDIES

Areas of interest: state capacity, political violence, and the political economy of development





Kaitlyn Schneider

VISITING ASSISTANT PROFESSOR SOCIAL SCIENCE & POLICY STUDIES

Areas of interest: how individual and environmental factors influence mental health and behavior



FACULTY PROMOTION & TENURE

The following faculty were promoted or received tenure in 2023. The following section will provide a list of faculty receiving tenure under WPI's "Excellence in Teaching" track.



Daniel DiMassa was awarded tenure and promoted to associate professor in the Department of Humanities & Arts.



Tian Guo was awarded tenure and promoted to associate professor in the Department of Computer Science.

Jennifer McWeeny was promoted to professor in the Department of Humanities & Arts.



David Medich was promoted to professor in the Department of Physics.





Oleg Pavlov was promoted to professor in the Department of Social Science & Policy Studies.



Carlo Pinciroli was awarded tenure and promoted to associate professor in the Department of Robotics Engineering.

Sarah Riddick was awarded tenure and promoted to associate professor in the Department of Humanities & Arts.





Robert Walls was awarded tenure and promoted to associate professor in the Department of Computer Science.

Kun-Ta Wu was awarded tenure and promoted to associate professor in the Department of Physics.



Min Wu was awarded tenure and promoted to associate professor in the Department of Mathematical Sciences.

Craig Shue was promoted to professor in the Department of Computer Science.





Fangfang Wang, associate professor in the Department of Mathematical Sciences, has been awarded tenure.



(It's a pleasure to congratulate these educators and scholars, all of whom have provided excellent teaching and advising for our students while making significant contributions in research and creative scholarship in, and often outside, their academic disciplines. **>>**

Arthur Heinricher, interim senior vice president and provost, 2022-23 academic year

A&S FACULTY APPOINTED TO TENURE TRACK FOR EXCELLENCE IN TEACHING

WPI has appointed 13 additional teaching professors to the university's pioneering tenure track, which recognizes and rewards excellence in teaching, bringing the total number of WPI teaching faculty members on the tenure pathway to 43.

Gizem Arslan has been appointed an assistant professor of teaching in the Department of Humanities & Arts.



Kara Parks Fontenot has been appointed an assistant professor of teaching in the Department of Humanities & Arts.





Emily Gioielli has been appointed an assistant professor of teaching in the Department of Humanities & Arts.



Kevin Lewis has been appointed an assistant professor of teaching in the Department of Humanities & Arts.





Samuel Tripp has been appointed an assistant professor of teaching in the Department of Mathematical Sciences.



•• All of these faculty members are accomplished teachers who have demonstrated their commitment and talent for engaging students to think, learn, and collaborate in classrooms, in labs, and on projects around the globe—work that is critical to providing the distinctive WPI education that equips students with the knowledge, skills, and passion to address the world's great problems. >>

Winston "Wole" Soboyejo, senior vice president and provost







A&S ADVISORY BOARD

WPI's Arts & Sciences Advisory Board advises and assists the dean in continually improving the quality and direction of opportunities for undergraduate and graduate students in the arts and sciences through educational advances, research opportunities, and connections to external stakeholders.

Sergio Salvatore '02 (Co-Chair), Vice President of Engineering, Vimeo
Kimberly Warren, (Co-Chair), Vice President, MITRE
Lauren Baker, Founder, Insight Medical Consulting
Douglas Borden III '96, Independent Management Consultant
Loree Griffin Burns '91, PhD, Freelance Writer
Neal Cappellino '87, Recording Engineer & Producer
John Gabranski '75, Consultant
Maryann Goebel '73, Member of the Board of Directors, Seacoast National Bank
Jennifer Kamara '12, Founder, Lioness Ventures
Mary Ellen Lane, PhD, Dean of the Morningside Graduate School of Biomedical Sciences, UMass Chan Medical School
Kenneth Maynard, PhD, Director of Global Program Team Effectiveness, Takeda Development Center Americas, Inc.
Ellen McCaskill '89, Senior Project Manager, ExxonMobil Global Projects Co. (retired)
Travis McCready, Head of Life Sciences, Americas Markets, JLL
Eliza Jane Reilly, PhD, Executive Director, National Center for Science and Civic Engagement
Richard Resnick '98, CEO, Cureatr
Sharon A. Savage '91, MD, Director, Clinical Genetics Branch and Clinical Director,
Division of Cancer Epidemiology and Genetics (DCEG), National Cancer Institute
Naveen Selvadurai '02, Co-Founder, Foursquare Labs
Nina Simon, Author, Cultural Manager, and Ashoka Fellow
effrey Tenney, MD, PhD, Associate Professor of Pediatrics and Neurology, Cincinnati Children's Hospital Medical Center
Urvashi Tyagi '01, Chief Technology Officer, ResMed
Michael Wallent '91, Corporate Vice President, Enterprise Management Team, Microsoft
Christina Willwerth '92, Chief Operating Officer, Nido Biosciences, Inc.



Sergio Salvatore '02, co-chair of WPI's Arts & Sciences Advisory Board, was featured in the winter 2023 edition of WPI Journal. Salvatore, an acclaimed jazz pianist and composer, discussed how WPI provided him with a supportive community as an undergraduate computer science major, which allowed him to pursue both his love of music and fascination with computer science.

ARTS & SCIENCES AT A GLANCE

Scie

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GRADUATE DEGREE PROGRAMS

Science and Technology for Innovation

in Global Development (MS)

System Dynamics (GC, MS, PhD)

System Dynamics/Innovation

Social Science (PhD)

Management (MS) Systems Thinking (GC)

Statistics (PhD)

Applied Mathematics (MS)	Major Progra	
Applied Statistics (MS)	of Study	
Biochemistry (MS, PhD)	Actuarial Mat	
Bioinformatics and Computational Biology (MS, PhD)	Applied Physi Biochemistry	
Biology and Biotechnology (MS, PhD)	Computation	
Bioscience Management (MS)	Biology & Biot	
Biotechnology (MS)	Computer Sci	
Chemistry (MS, PhD)	Data Science	
Computational Media (PhD)	Economic Scie	
Computer Science (GC, MCS, MS, PhD)	Environmenta	
Data Science (GC, MCS, MS, PhD)	Sustainability	
Financial Mathematics (MS)	Interactive Me	
Industrial Mathematics (MS)	Development	
Interactive Media and Game Development (MFA, MS)	Interactive Me Game Develo Technology	
Interdisciplinary (MS, PhD)	Interdisciplina	
Learning Sciences and Technology (MS, PhD)	International Global Studie	
Life Science Management (GC)		
Master of Mathematics for Educators (MME)	STUDEN	
Mathematical Sciences (PhD)	Fall 2018	
Mathematics for Educators (MS)	Fall 2019	
Neuroscience (MS)	Fall 2020	
Physics (MS, PhD)	Fall 2021	
Robotics Engineering (GC, MCS, MS, PhD)	Fall 2022	
Robotics Engineering Management (GC)		

141	Teac
60	Teac
17	Teac
218	Tota

UNDERGRADUATE MAJORS AND MINORS

ms	Liberal Arts & Engineering	English
	Mathematical Sciences	Environmental &
ematics	Physics	Sustainability Studies
s	Professional Writing	Financial Analysis
	Psychological Science	Global Public Health
&	Robotics Engineering	History
l Biology	Science (Freshmen Only)	Interactive Media & Game
echnology	Society, Technology	Development
	& Policy	International & Global
nce	System Dynamics	Studies
		Law & Technology
nce	of Study	Mathematics
nvsics		Media Arts
&	Astrophysics	Music
Studies	Biochemistry	Nanoscience
Arts	Bioinformatics &	Philosophy & Religion
dia & Game	Computational Biology	Physics
	Biology	Psychology
dia &	Chemistry	Robotics Engineering
oment-	Computer Science	Statistics
	Data Science	
ry	Drama/Theatre	
	Economics	Writing & Rhetoric

DENT ENROLLMENT (UNDERGRADUATE & GRADUATE)

2,023
2,214
2,319
2,559
2,713

2022-23 A&S FACULTY

- ching/Tenure Track (TTT)
- ching and Research Track (TRT)
- ching and Research Track (TRT-TT)



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