



# WPI

# Arts & Sciences

NEWS AND EVENTS

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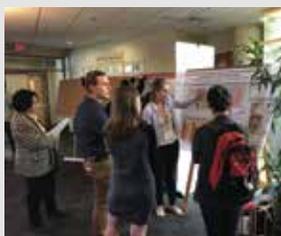
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## Dean's Message: Supporting Democracy and Active Citizenship

Thomas Dewey wrote, "The task of democracy is forever that of creation of a freer and more humane experience in which all share and to which all contribute." I am not sure he was talking about the WPI problem-solving approach—but he could have been! Evolutionary biology teaches us that "form follows function" and our form of problem solving requires the function of education to be one that encourages students to have voice, be able to challenge, discern, and analyze, and seek alternative solutions. Projects allow our students to "do" the hard work of working in teams, identifying strengths and contributions of the diverse members of the team, and to get a job done by using everyone's strengths. This uniquely WPI approach can also be seen as a means to engage our students in a democracy in which all contribute and all share in the rewards.

I am often reminded that the core principles of democracy are embedded within our project-based approach. Core principles such as access to information, the freedom to express one's ability to argue and take a stand, and the ability to exchange information while working through solutions are hallmarks of WPI as well as active citizenship. Together our project teams participate in decision making—and, as a team, not everyone will be happy with the final results. This too is democracy in action. Voice, integrity, transparency, and inclusiveness are fundamental aspects of our project-based approach. Add to this the amazing



technical science and engineering education they receive; there is no doubt we are developing the future leaders of our country. Even more important, we are developing participatory citizens who keep our democracy strong.

So, the next time someone talks about WPI projects, remember that it is not just about finding a solution, but rather it's more about finding one's voice, making choices, and having the freedom to explore alternatives. These skills—"harder than hard skills"—lay the foundation of a civically engaged WPI graduate, one who can readily participate in the democratic process and be a world leader.

## A&S Departments Welcome New Faculty

With all the welcome receptions for new colleagues, the Arts & Sciences departments chose to do something different and by hosting new tenure-track and teaching faculty at a “roving” lunch. Faculty enjoyed a different course in each of the seven A&S areas. Department heads Craig Wills of Computer Science (holding the flag) and Douglas Petkie of Physics (second from right) escorted the faculty to each department where the new faculty were introduced to their new colleagues and the department’s offices.



### **Mohamed Brahim**, *Instructor/Lecturer, Humanities and Arts*

Brahimi has extensive background in community organizing and advocacy work and has led efforts to increase political and civic engagement among the Boston Muslim community. He has consulted in numerous research endeavors as a voice for the Muslim community and was also involved in a number of social science research projects with the Cambridge Institute of Health producing research that bolsters advocacy tools for immigrant and minority communities. He is the founder and managing editor of Al Arab News and founder of the Moroccan American Civic and Cultural Association, a volunteer organization that emphasizes the importance of participatory citizenship. He has taught previously at Providence College, Emmanuel College, and Worcester State University.



### **Lucia Carichino**, *Postdoctoral Scholar, Mathematical Sciences*

Carichino’s research focuses on the mathematical and computational modeling of biological fluids and tissues. During her PhD work, she developed mathematical models to investigate the relevance of mechanical and vascular factors in the pathophysiology of glaucoma, a neurodegenerative disease affecting the eye. She earned a BS and MS at Politecnico di Milano, Italy, and a PhD at Purdue University.



### **Simone Cassani**, *Postdoctoral Scholar, Mathematical Sciences*

Cassani’s research includes the field of applied mathematics studying biological applications. His PhD work focused on the study of ocular blood circulation and aqueous humor flow in relation to ocular diseases, with a particular interest in glaucoma, a degenerative ocular disease which is the second leading cause of blindness all over the world. He earned a BS and MS at Politecnico di Milano, Italy, and a PhD at Purdue University.



### **Farley Chery**, *Assistant Teaching Professor, Interactive Media and Game Development*

Chery is a 3D artist and animator with specialties in Motion Capture and Character Rigging. He has published training materials in rigging for Digital Tutors and has taught at Northeastern University and Fitchburg State University, among many other area universities. He earned an MFA in Media Design at Full Sail University.



### **Amalene Cooper-Morgan**, *Assistant Teaching Professor, Chemistry and Biochemistry*

As a graduate student, Cooper-Morgan investigated 3’-end mRNA processing. In collaboration with a structural biology lab, her biochemical studies suggest that Rai1/Dom3Z, the protein that stimulates Rat1 exonuclease activity, possesses pyrophosphohydrolase activity towards 5’ triphosphorylated RNA. During her postdoctoral fellowship, she used her background in biochemistry to determine whether long-range interactions are important for regulation of IGF2. She interrogated long-range chromatin interactions between IGF2 promoter(s) and other regions of the human genome. She earned an MA, MPhil, and PhD at Columbia University.



**John Galante, Assistant Teaching Professor, Humanities and Arts**

Galante joins WPI from the University of Pittsburgh, where his dissertation focused on the impacts of World War I on Italian communities in Buenos Aires, Montevideo and São Paulo. The project pays particular attention to the effects of homeland crises on social relations within immigrant communities and on the transnational networks in which immigrant groups are situated. He has also worked as a market analyst and journalist covering the global energy sector, most recently for consultancy ESAI Energy in Wakefield, Mass.



**Kelum Gajamannage, Postdoctoral Scholar, Mathematical Sciences**

Gajamannage's research is mainly focused on manifold learning and dimensionality reduction in collective motion. As a secondary focus, he uses the aid of image processing frameworks for pattern recognition to study collective motion with transitions, and also has a broad interest in mathematical modelling of dynamics of multi-agent systems. His research outputs range from theoretical results to algorithms. He earned MS and BS degrees at the University of Peredenya in Sri Lanka and a PhD in Mathematics at Clarkson University.



**Tian Guo, Assistant Research Professor, Computer Science**

Guo's research is about modeling system behaviors, especially those of large scale systems, and to build prototypes that help to empirically evaluate system's behaviors. Broadly, she is interested in designing systems to handle new trade-offs in cost, performance and efficiency. Specially, she has worked on research projects, in the context of distributed systems and cloud computing, that automate cloud resource management tasks, improve distributed application performance and provide new system abstractions. She was awarded a Graduate School Dissertation Writing Scholarship at UMass Amherst, where she received her PhD, and has worked at AT&T Research and NEC Labs.



**Edward Gutierrez, Assistant Teaching Professor, Interactive Media and Game Development**

Gutierrez is an artist with extensive experience in Animation and Drawing. He has worked as an animator at Warner Brothers and Walt Disney Feature Animation. He comes to WPI from California College of the Arts. He earned an MFA from Academy of Art University in San Francisco.



**Jeffrey Kesselman, Instructor/Lecturer, Interactive Media and Game Development**

Kesselman is a game software developer with extensive professional and technical expertise. He was the Chief Technical Officer at 4d North, Blue Fang Games, Rebel Monkey, and Entertainment Games. He was also a senior software engineer and "Chief Instigator" working on Java game technologies at Sun Microsystems Laboratories. He has taught at WPI, Becker, Northeastern, and Daniel Webster College. He earned a BS in Computer Science and Film Production at the University of Wisconsin-Madison.



**Patricia Medina, Postdoctoral Scholar, Mathematical Sciences**

Medina's research is in applied mathematics with a focus on the mathematical and computational treatment of models given by systems of partial differential equations with nonlinearities. She has also done research in non-parametric statistics and in Banach space theory (Orlicz spaces). She earned an MS in Mathematics at Universidad de los Andes, an MA in Mathematics at Bowling Green State University, and a PhD in Mathematics at Oregon State University.



**Xiaodan Zhou, Postdoctoral Scholar, Mathematical Sciences**

Zhou's research areas include analysis on metric spaces, nonlinear partial differential equations, sub-Riemannian geometry, and differential games. She earned a BS in Mathematics at Beijing Normal University and a PhD in Mathematics at the University of Pittsburgh.

## FACULTY MAKING NEWS: RECENT RESEARCH HIGHLIGHTS



*Erkan Tüzel*

Erkan Tüzel, associate professor of physics, was awarded an R01 grant in the amount of \$611,000 from the National Institutes of Health, titled "Multimotor Mechanisms in Microtubule-based Transport." The award will support his collaborative work with Pennsylvania State University (total award amount \$2.1 million). In neurons and other cells, intracellular cargos are transported along microtubule tracks by the competing activities of kinesin and dynein molecular motors, but the mechanical and chemical mechanisms underlying the net directionality of transport are not well understood. Under this award, Tüzel and his colleagues will use in vitro reconstructions of motor-functionalized cargo, high resolution particle tracking, and computational modeling to understand the molecular mechanisms underlying bidirectional transport along microtubules. Because defects in axonal transport are linked to Amyotrophic Lateral Sclerosis and Alzheimer's disease, this work will help us better understand the molecular basis of human neurodegenerative diseases.



*Scarlet Shell*

Scarlet Shell, assistant professor of biology & biotechnology (BBT), was awarded a \$1 million CAREER award from the National Science Foundation (NSF) titled "CAREER: Post-transcriptional regulation of mRNA stability in *Mycobacterium smegmatis*." This is the second NSF CAREER award received by a BBT faculty member in the past four years. Under this grant, Shell will pursue an understanding of how mycobacteria regulate their gene expression in order to survive stressful environments, with a focus on the fundamental molecular and cellular mechanisms governing post-transcriptional gene regulation. The goal of this work is to generate foundational knowledge about the stress-response mechanisms that render mycobacteria so successful in diverse environments, from soil to the human body.



*Kristin Boudreau*



*David DiBiasio*



*Zoe Reiding*

WPI was recently awarded a grant from the National Science Foundation to better understand the conditions that help LGBTQ engineering students feel comfortable in their educational institutions. This two-year grant, titled "Research Initiation: Understanding the Conditions for Inclusive Spaces for LGBTQ Engineering Students," is being led by Kristin Boudreau, professor of humanities & arts; David DiBiasio, associate professor of chemical engineering; and Zoe Reiding, assistant teaching professor of biomedical engineering. WPI's research team will also identify the experiences that help develop the emotional intelligence and cross-cultural sensitivity supports for all engineers, including but not exclusively other underrepresented populations.



*Jennifer Rudolph*



*Amy Zeng*



*Jennifer deWinter*

Jennifer Rudolph (PI), associate professor of Asian history and international/global studies; Amy Zeng (co-PI), professor, Foisie Business School; and Jennifer deWinter (co-PI), associate professor of rhetoric have been awarded a grant from the U.S. Department of Education for their initiative, "Expanding Expertise on China and International Entrepreneurship Education at WPI." With this funding, WPI will develop undergraduate curricular initiatives in international entrepreneurship within the International and Global Studies program and the Foisie Business School for undergraduates, as well as international entrepreneurship project opportunities in China. This award is part of the Department of Education's Undergraduate Foreign Languages and International Studies program designed to increase global competencies in strategic areas through advanced language study, innovative international studies curricula, and study abroad.

## FACULTY MAKING NEWS: RECENT RESEARCH HIGHLIGHTS



*Brenton Faber*

Brenton Faber, professor of writing in humanities & arts, along with colleagues at Canton-Potsdam Hospital in Potsdam, N.Y., was awarded a \$300,000 Vital Access Provider grant from the New York State Department of Health. The project is designed to reduce inpatient length of stay, unnecessary 30- and 60-day readmissions, and unnecessary Emergency Department visits for patients suffering from Congestive Heart Failure and Chronic Obstructive Pulmonary Disease. The team will assess specialist treatment protocols and cohort patient outcomes to develop best practices for specialist consults, treatment plans, and disease-specific order sets. Results will be implemented in two rural New York hospitals. Canton-Potsdam Hospital is located in a federally designated healthcare shortage area of St. Lawrence County, and is a sole community provider. Faber is a National Registered Paramedic, certified in New York and Massachusetts.



*Huili Zheng*



*Jennifer Rudolph*

Huili Zheng (PI), visiting assistant professor of Chinese, and Jennifer Rudolph (co-PI), associate professor of Asian history and international/global studies, were recently awarded a grant from the U.S. Department of Defense through the Institute of International Education for a second year as part of the Project GO (Global Officer) program. Project GO provides intensive training in strategic languages and culture for future military officers. By the end of the program, participants are expected to have achieved elementary proficiency in a target strategic language, which in the case of WPI's Project GO is Mandarin Chinese.



*Anita Mattson*

Anita Mattson, associate professor of chemistry & biochemistry, was awarded a grant from the National Science Foundation (NSF) titled "Chiral silanediols in anion-binding catalysis." Under this grant, she will design and implement studies related to chiral silanediols in anion-binding catalysis and will oversee two graduate students in the syntheses of chiral silanediols and the development of innovative enantioselective methodologies reliant on silanediol anion-binding catalysis. She will also oversee mechanistic studies probing the noncovalent interactions of silanediol-catalyzed anion-binding processes.



*Mark Claypool*

Mark Claypool, professor of computer science, was awarded a grant from Verizon Communications, titled "Evaluating and Improving Performance of TCP Verizon Wireless Radio Access Networking Using NS-3 with LibOS." Under this grant, he will develop TCP performance optimization code for Verizon's 4G Long-Term Evolution (LTE) network. The research team will create a network test environment, evaluate existing protocols, and produce a customized TCP congestion control protocol.



*Ivon Arroyo*



*Neil Heffernan*

Ivon Arroyo, assistant professor of social science & policy studies, and Neil Heffernan, professor of computer science, have been awarded a grant from the National Science Foundation, titled "BD Spokes: Spoke: NORTHEAST: Collaborative: Grand Challenges for Data-Driven Education." This project will support teachers, administrators, and researchers to collaborate around online education resources and big data. It will increase the capacity of WPI and other researchers to analyze data from schools, students and administrators, and to improve teaching and learning. This award is part of NSF funding for 10 "Big Data Spokes" projects to initiate research on specific topics identified by the Big Data Regional Innovation Hubs (BD Hubs). These hubs were created to foster multi-sector collaborations among academia, industry, and government to solve regional challenges. WPI is part of a BD Spokes Project in the Northeast and will work with UMass Amherst and the University of Pennsylvania.

### From Research to Practice: On-Line Math

ASSISTments, the online math homework system developed by Neil Heffernan, professor of computer science, causes students to learn 75 percent more on standardized tests of math achievement compared to what the students would have learned in a typical school year, according to a new study published in the journal *AERA Open* by the American Education Research Association. The study, a randomized control trial conducted by SRI Educational Research with 2,850 seventh graders in 43 public schools in Maine, also showed that ASSISTments was most beneficial for students who began the year with lower math scores. In addition, teachers reported they found the system easy to implement, in part because it fits within common school policies for homework. ASSISTments has been used by 100,000 elementary, middle, and high school students across the U.S. since 2002. Aside from nominal training and set-up fees to cover the team's expenses, ASSISTments is available as a free public service of WPI. For more information: [www.assistments.org](http://www.assistments.org).



### Collaboration Sheds Light on Diabetes

Izabela Stroe, assistant teaching professor of physics, recently had her work with the Los Alamos National Laboratory featured in the journal *Langmuir*. The research is a collaboration between Los Alamos, Yale University, and WPI and sheds light on pathological properties of amyloids identified in type II diabetes. Amyloids are unwanted aggregates of proteins in our bodies. Frequently they form fibers or plaques whose presence is correlated with the pathology for many diseases, including Alzheimer's, Parkinson's, and type II diabetes. The insight into the mechanism of membrane disruption may help clinicians devise strategies to treat these types of diseases.



### Scientific Society Honors Faculty

José M. Argüello, the Walter and Miriam Rutman Professor of Biochemistry, and L. Ramdas Ram-Mohan, professor of physics, have been elected Fellows of the American Association for the Advancement of Science (AAAS). AAAS is the world's largest multidisciplinary scientific society and a leading publisher of cutting-edge research. Election as a Fellow of AAAS is an honor bestowed upon members by their peers. Fellows are recognized for meritorious efforts to advance science or its applications.



## Educational Research Fellowship

The American Educational Research Association (AERA) has selected Erin Ottmar, assistant professor of social science & policy studies, as one of eight fellows. The AERA Fellowship Program on the Study of Deeper Learning (AERA-SDL) supports postdoctoral and early career scholars in education research and thereby fosters excellence and rigor in the next generation of faculty members, research scientists, and scholars examining education topics and issues. The AERA-SDL permits undertaking research projects using the Deeper Learning data and the design and implementation of professional development and training around these data. The Deeper Learning data collected by the American Institutes for Research includes a wealth of information from schools, students, and teachers at a sample of Deeper Learning network high schools and non-network high schools. The program is supported by the William and Flora Hewlett Foundation.



## Outstanding Contribution to Mathematics

Umberto Mosco, Harold J. Gay Chair Professor of Mathematical Sciences, has been elected a Fellow of the American Mathematical Society (AMS). This recognition is awarded with a mention of his "contributions to analysis and partial differential equations, in particular for introducing a theory of variational convergence." The AMS Fellowships recognize members of the AMS who have made outstanding contributions to the creation, exposition, advancement, communication, and utilization of mathematics. Mosco is the first WPI faculty member honored with this prestigious fellowship. This is a reflection of the appreciation of the mathematical sciences community for his deep work and his commitment to science.



### Creating a Pipeline

WPI's STEM Faculty Launch is a premier two-day, expenses-paid workshop for graduate students and postdoctoral researchers who seek tenure-track positions in the STEM fields. The workshop covers best practices for pursuing, applying for, and establishing faculty careers and is open to candidates nationwide. Women and candidates from populations that are traditionally underrepresented in the STEM disciplines are strongly encouraged to apply. WPI received an overwhelming response for this second annual launch. Of the nearly 200 individuals who applied, 32 were accepted to attend the workshop, representing more than 25 colleges and universities, and three countries. Participants attended a variety of interactive sessions on such topics as conducting a successful research talk, managing faculty interviews, telling one's story through social media and networking, negotiating job offers, and creating an individual development plan. Jennifer Slimowitz Pearl, program director in the division of Mathematical Sciences at the National Science Foundation, conducted a special presentation on NSF grant opportunities for early-career faculty and provided valuable advice on how to interact with the agency as a researcher. Workshop participants spent time in the departments of their disciplines and had multiple networking opportunities—including dinner with faculty, department heads, and senior WPI leaders.



*Cynthia Fuhrmann, assistant professor at UMASS Medical School, conducts a session on preparing for the academic job hunt.*

### The Math Meets Competition



In keeping with its commitment to K-12 outreach and education, the WPI Mathematical Sciences Department held the 29th Annual Invitational Mathematics Meet on October 18. The event brought 356 students from 89 New England high schools to campus along with their advisors. Students and teams competed against each other by completing a series of increasingly difficult math problems, which they had to answer within a set amount of time to score points. More than \$100,000 in scholarships to WPI were awarded to individual and team winners.

### Proud to be a Leader: AWIS Chapter Launched



Members of the Central Massachusetts chapter of the Association for Women in Science (AWIS) recently celebrated the launch of the new chapter in Worcester. The mission of AWIS is to champion the interests of women in STEM disciplines in all employment sectors, including industry, academia, and government. AWIS hosts leadership and professional development workshops, career panels, networking socials, and scientific symposia to support women at all career stages. If you are an AWIS national member and wish to become a member of the new Central Massachusetts chapter, contact Natalie Farny (nfarny@wpi.edu) or visit [awiscentralma.org](http://awiscentralma.org).

## The Power and Challenge of Water Security

On October 24, more than 200 thought leaders from academia, industry, and the government attended a daylong workshop focused on issues of water supply abundance, access, and safety. This innovative workshop, organized by Dean Karen Kashmanian Oates and sponsored by the National Science Foundation, was conducted in partnership with SENCER (Science Education for New Civic Engagements and Responsibilities), the New England Water Innovation Network, the U.S. Water Partnership, the UMass Water Resources Research Center, the United States Geological Survey, and Campus Compact organizations from throughout New England.



The workshop received a powerful opening from Winston Soboyejo, WPI's dean of engineering, whose keynote address, "Water Innovation for Global Development," presented point-of-use water filters for developing countries as a lens to view sustainable solutions for water safety. His memorable presentation was followed by concurrent panel sessions facilitated by experts from the academic,

industry, and government sectors on such issues as the role of water innovation clusters, the role of academic research and education, and international and domestic commerce opportunities. Breakout sessions, led by innovators from the water sector, addressed market driven needs and solutions for municipal waste water, storm water, infrastructure and data analysis, drinking water contaminants, industrial water needs across food and energy, and water sustainability management. A lunchtime "fireside chat" featured Watts Water Technologies and the U.S. Environmental Protection Agency and yielded thought-provoking dialogue on water innovation and the role of industry and government with leadership. The day concluded with a poster session featuring water-related research by undergraduate and graduate students from universities throughout the region, including WPI, and a networking dinner reception. The important dialogue initiated at this workshop will be continued as WPI hosts a follow-up water workshop in 2017 that will focus on developing steps to move forward. For more information on WPI's water workshop: [wpi.edu/+waterworkshop](http://wpi.edu/+waterworkshop).



## Women Faculty Mentoring Our Women Scholars 2016–17 Clare Boothe Luce Research Scholars

WPI is committed to encouraging and supporting women in fields in which they are traditionally underrepresented. As part of that effort, WPI's Office of Arts & Sciences provides research awards made possible by the Henry Luce Foundation to support undergraduate women in math, computer science, physics, and robotics engineering. WPI's Clare Boothe Luce Research Scholars are selected based on academic excellence and the quality of their research projects. Each student is mentored by a WPI woman researcher. WPI selected seven Clare Boothe Luce Research scholars, listed below, for the 2016–17 academic year. WPI will support these scholars and their mentors as they undertake research projects that will enrich the students' educational experiences.



**Shannon Feeley '17**  
**Mathematical Sciences**

**Mentor:**  
Suzanne Weekes, Professor of  
Mathematical Sciences

**Research Project:**  
Search and Rescue Planning



**Katie Gandomi '17**  
**Robotics Engineering**

**Mentor:**  
Carolina Ruiz, Associate  
Professor of Computer Science

**Research Project:**  
Autonomous Delivery with  
Unmanned Aerial Vehicles



**Amanda Leahy '18**  
**Physics**

**Mentor:**  
Lyubov Titova, Assistant  
Professor of Physics

**Research Project:**  
Use of Gafchromic Film  
for Brachytherapy Source  
Characterization



**Holly Nguyen '18**  
**Computer Science**

**Mentor:**  
Carolina Ruiz, Associate  
Professor of Computer Science

**Research Project:**  
Personalized Computational  
Tools to Foster Better Sleep  
Habits in College



**Aline Tomasian '18**  
**Physics**

**Mentor:**  
Lyubov Titova, Assistant  
Professor of Physics

**Research Project:**  
Spectroscopic Techniques  
for Amyloidogenic Proteins  
Related to Alzheimer's Disease  
and Type II Diabetes



**Natalie Wellen '17**  
**Mathematical Sciences**

**Mentor:**  
Suzanne Weekes, Professor of  
Mathematical Sciences

**Research Project:**  
Modeling Financial Networks  
and Extensions to the OTC  
Derivatives Market

**Hope Wallace '18**  
**Computer Science**

**Mentor:**  
Kathi Fisler, Professor of Computer Science

**Research Project:**  
Predicting Exergame Enjoyment



*Dean Oates speaks to the Luce scholars during a recent lunch presentation.*

# HOW YOU CAN SUPPORT ARTS & SCIENCES STUDENTS AND FACULTY

The **arts and sciences** are an integral part of WPI's mission to create, discover, and convey knowledge at the frontiers of technological academic inquiry for the betterment of society. You can support WPI's commitment to providing students with a unique, experiential STEM education by participating in the funding initiatives below. For more information, contact Monica Ellis, Director of Academic Advancement, Arts & Sciences, at [mellis@wpi.edu](mailto:mellis@wpi.edu) or 508-831-4836.

## The Dean's Fund for Faculty Excellence

WPI recruits world-class scholars who provide WPI students with a world-class education in the arts and sciences. The Dean's Fund for Faculty Excellence supports faculty teaching and research by funding professional development opportunities for faculty as well as their students (e.g., a faculty member and student attending a professional meeting). This also provides funds for faculty who are outstanding researchers in their fields to purchase materials and instrumentation.

## The Dean's Fund for Graduate Studies

WPI offers master's and PhD programs in Arts & Sciences that are competitive with top universities worldwide. The Dean's Fund for Graduate Studies allows WPI to bring the best and brightest master's and PhD students to WPI by providing the financial resources to offer competitive funding and fellowship opportunities to graduate students.

## Arts & Sciences Undergraduate Research Fellows Program

This intensive summer research experience provides students with opportunities to conduct research under the mentorship of WPI faculty. Fellows are awarded stipends that allow them to stay on campus for the summer to work full-time on individual research projects. They gain experience in modern research techniques and learn to plan and execute experimental strategies. These valuable opportunities are made possible thanks to the generous support of WPI alumni and friends.

# Alumni Spotlight: Steven Davi '85, Senior Vice President at Synacor



Steven Davi is senior vice president, software engineering, at Synacor, a technology development, multiplatform services and revenue partner for video, Internet, and communications providers, device manufacturers, and enterprises and a member of WPI's Arts & Sciences Advisory Board. He oversees more than 200 software engineers in nine corporate locations across the world. Previously, he was senior vice president of advanced technology and chief technology officer at SeaChange International and part of the team that created the first video-on-demand system, an effort for which he received a Technology & Engineering Emmy. We recently asked him to reflect on his time at WPI and to provide insight on educating the technical workforce of the future.

## **In what ways did WPI influence your career path as a software developer?**

I was always good in math and science and knew I wanted to go into some type of technical engineering. Between my junior and senior years of high school, I won a scholarship to attend a technical university in upstate New York where I took an Introduction to Computer Science course. I immediately fell in love with programming and the ability to create something from scratch. However, I hated the university, finding it too big and impersonal. After learning about WPI, I thought it might be a better fit, especially its project-based approach. During my time at WPI, I learned how to problem solve, work as part of a team, and look at problems from different perspectives—all valuable skills. I have managed people and been managed by people who didn't have these skills and I have come to believe that it is these skills that differentiate between who is successful and who is just doing their job.

## **What are some challenges you see in educating the workforce for the future and how can WPI address them?**

The technology we are using is constantly changing. The programming language that I learned at WPI is not what we are using today but the concepts of software development and the problems we are trying to solve are. WPI is not just teaching its students how to program in a specific language. WPI is teaching its students how to solve problems and to work with teams to do it, and I think that is one of the benefits of the WPI education. If you take a look at the world today, software is everywhere. Smart devices, driverless cars, wearable technology, augmented reality. When I speak with students, I always encourage them to take a programming class—even if they are not computer science majors—because students need to understand how software is impacting their lives.

## **What can a computer science student do to stand out in a competitive job market?**

My advice to computer science students is to get a range of experiences. This shows a potential employer that you have an ability to learn and a breadth of experience in different areas. My first job was with a networking company and I had no networking experience other than a class I took at WPI, but the company still took a chance on me. I was able to be successful because I relied on the range of experiences that I gained at WPI.

## **How does WPI's emphasis on global projects help students gain an edge?**

We live in a global society. For example, the engineering workforce I manage is scattered throughout the world. In today's software industry, we don't worry just about the differences between the East and West coasts of the U.S. but also about the cultural differences between the U.S. and countries like India, Japan, China, and many others. To be successful in this global economy, you need to experience and understand different perspectives on how to approach work and problem solving, which is something WPI emphasizes.



# WPI

ARTS &  
SCIENCES

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