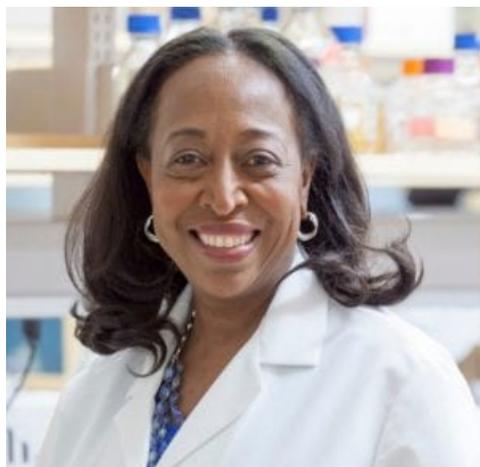


Speakers

Opening Remarks



Dr. Jean King

Peterson Family Dean of Arts & Sciences, WPI

A widely respected neuroscientist, Jean King joined the WPI community as the Peterson Family Dean of Arts and Sciences in 2017. In addition to her duties as dean, she is a professor in the Department of Biology and Biotechnology. Dr. King's research uses functional magnetic resonance imaging (fMRI) to identify and monitor neuronal plasticity associated with addiction, ADHD, depression, fearfulness, anxiety, autism and neurological disorders (PD and TBI) in animal models

with the hope of finding clues to help us understand these conditions in humans. Dr. King has published over 60 original scientific papers in highly respected international scientific journals, over 10 chapters in books and review articles in major neurophysiology journals, and is an editor of New York Academy of Sciences Publication – Roots of Mental Illness in Children. Prior to joining WPI, she was vice provost for biomedical research at the University of Massachusetts Medical School; a tenured professor of psychiatry, radiology, and neurology; and director of the university's Center for Comparative Neuroimaging.



Dr. Elke Rundensteiner

Founding Director of Data Science Program, Professor of Computer Science, WPI

Dr. Elke Rundensteiner, Professor in Computer Science, is the founding Director of the interdisciplinary Data Science program at Worcester Polytechnic Institute (WPI). Dr. Rundensteiner is an internationally recognized expert in big data analytics. Her recent research interests include scalable machine learning and knowledge discovery, event sensor stream analytics, intelligent decision making, and visual and

computational big data analytics infrastructures. With an h-index of 55, she has authored well over 370 publications, numerous patents, and software systems released to public domain. Her work has been supported by government agencies including DARPA, NSF, NIH, DOE, and FDA,

and by industry including HP, IBM, Verizon Labs, GTE, NEC, AMADEUS, Charles River Analytics, and by labs such as MITRE Corporation. Dr. Rundensteiner has been recipient of numerous honors, including WPI Chairman's Exemplary Faculty Prize, WPI Board of Trustees' Outstanding Research and Creative Scholarship award, Sigma Xi Outstanding Senior Faculty Researcher, and the NSF Young Investigator award. Dr. Rundensteiner holds leadership positions in the big data field, having served as Associate Editor of IEEE Transactions on Data and Knowledge Engineering and VLDB Journal and as area chair on premiere professional big data conferences, including ACM SIGMOD, VLDB, IEEE ICDE, and others.

Keynote Speaker



Dr. Fernanda Viégas

Senior Researcher, Google Co-Leader PAIR (People + AI Research) Initiative and Big Picture Team

Fernanda Viégas is a senior researcher at Google where she co-leads the PAIR (People+AI Research) initiative, part of Google Brain. Her work in machine learning, with long-time collaborator Martin Wattenberg, focuses on improving human/AI interaction with a broader agenda of democratizing AI technology. She is well known for her contributions to social and collaborative visualization, and the systems she and her team have created are used daily by millions of people. Fernanda's passion for making complex data understandable to lay viewers has led her to visualize wind currents, study collaboration patterns in Wikipedia, and create a dynamic map of news around the world. Her visualization-based artwork has been exhibited worldwide, and is part of the permanent collection of Museum of Modern Art in New York. Fernanda holds a PhD from the MIT Media Lab.

Talk Title: Science, Art and Design: A Career in Data Visualization

Abstract: How does a graphic designer become a data visualization expert, a scientist and an artist? And why would anyone want to do that? In this talk I'll share my non-traditional career path and talk about my work in data visualization. I'll discuss how visualizing data can range from scientific undertaking to artistic practice. I'll present a series of projects that illustrate how the coupling of visualization technique and design thinking not only empowers experts, but also welcomes lay viewers into the world of data and statistics.

Afternoon Greeting



Kristin Tichenor

Senior Vice President, Enrollment & Institutional Strategy, WPI

As senior vice president, Kristin Tichenor oversees WPI's enrollment division and leads the implementation of WPI's strategic plan, Elevate Impact. Her portfolio includes graduate and undergraduate enrollment services, institutional research, the registrar's office, pre-collegiate outreach programs and multicultural affairs. Under her leadership, WPI has seen dramatic increases in application volume, selectivity, quality and diversity.

Tichenor led WPI's adoption of a test-optional admissions policy, which is now in its tenth year.

Tichenor is an advocate for equity, access and diversity in higher education, with op-eds and articles appearing in publications such as the Washington Post and the Chronicle of Higher Education. She is founder and convener of the College Admissions Collaborative Highlighting Engineering and Technology (CACHET), a higher education forum dedicated to promoting opportunities for students in engineering and technology. She has served on the College Board's Colloquium Planning Committee and New England Regional Council, and has been active in the National Association of College and Admissions Counseling (NACAC) and the National Consortium of Secondary STEM Schools (NCSSS).

Tichenor earned her Bachelor's degree from Carleton College, her Master's degree from Clark University and is currently pursuing her doctoral degree at the University of Pennsylvania.

Technology Vision Talks



Dr. Tanya Leise

Amherst College

Tanya Leise has been teaching in the Department of Mathematics & Statistics at Amherst College since 2004. Her courses focus primarily on undergraduate applied mathematics, including multivariable calculus, applied linear algebra, differential equations, mathematical modeling, and Fourier and wavelet analysis. Tanya's research on biological oscillators focuses on circadian rhythms in mammals and is highly interdisciplinary in nature. She works with colleagues in neuroscience and

biology to study the physiological mechanisms of the circadian clock at the cellular and tissue levels in a variety of organisms. She utilizes a mix of mathematical modeling and wavelet-based time series analysis to gain insight into the circadian clock.

Talk title: Rhythms of Life: Analyzing the Circadian Clock

Abstract: Most creatures on earth have internal circadian clocks that regulate our daily rhythms of activity and sleep. Like mechanical clocks, these biological clocks keep regular, precise time and can be reset to match external time, for instance, adjusting to changes in time zone. We'll take a look at analysis of circadian clock oscillations in behavioral and molecular records of animals like mice, fruit flies, and bears, employing a variety of methods ranging from autocorrelation to wavelet transforms. Circadian data is often noisy and with relatively few cycles, so that reliable estimation of period can be quite challenging.



Melanie Jutras

MITRE Corporation

Melanie is a seasoned professional with over 20 years experience in software engineering. As a lifelong learner, she holds BS and MS degrees in Computer Science as well as her most recent MS degree in Data Science from Worcester Polytechnic Institute. Melanie works as a Data Scientist for The MITRE Corporation in Bedford, Massachusetts. Her areas of work and research have included Robust and Sparse Principal Component Analysis, anomaly detection and dimension reduction

techniques applied in the cybersecurity and healthcare domain.

Data Science Applications



Dr. Fatemah Emdad

Associate Teaching Professor, Data Science, WPI

Prof. Fatemeh Emdad completed her Ph.D. in Applied Mathematics at Colorado State University (CSU), and Postdoctoral in Biostatistics at the Shriners Hospital for Children, University of Texas Medical Branch (UTMB), where she was a research scientist fellow under Ruth L. Kirschstein National Research Service Award from National Institute of Health (NIH). Currently, she is an Associate Teaching Professor, and Graduate Qualifying Project coordinator at Worcester Polytechnic Institute

(WPI). Prof. Emdad's research interests are mathematical modeling, biostatistics, data mining, statistical methods for data science, and business analytics.



Penny Anderson

Senior Engineering Manager, MATLAB Products, MathWorks

Penny Anderson is a Senior Manager of software development at MathWorks. She has worked at MathWorks since 1996, and has had women managers for 20 of those 23 years! She manages and influences teams and projects in the Data Science space including Big Data and Prescriptive Analytics. Her focus is on providing tools for engineers and scientists to do data science both in MATLAB as well as integrating into other

platforms and frameworks including open source such as Apache Hadoop, Apache Spark and Apache Kafka. She has a BSc in Honors Mathematics and an MSc in Computer Science, both from McGill University in Canada.



Dr. Heather Gorr

MATLAB Product Marketing Team, MathWorks

Heather Gorr holds a Ph.D. in Materials Science Engineering from the University of Pittsburgh and a Masters and Bachelors of Science in Physics from Penn State University. Since 2013, she has supported MATLAB users in the areas of mathematics, data science, deep learning, and application deployment. She currently acts a Senior Product Marketing Manager for MATLAB, responsible for technical marketing and creating examples in data science. Prior to joining MathWorks, she was a Research Fellow, focused on machine learning for prediction of fluid

concentrations.

Talk Title: Data Science Applications with MATLAB

Abstract: This talk will explore data science capabilities in MATLAB using an atmospheric science application. We will follow a complete workflow from data import, preprocessing, feature selection, machine learning, and finally deployment of the models to a variety of environments. This includes scaling to clusters, on-premise or in the cloud.

Panel Discussion



Dr. Eleanor Loiacono

Professor of IT and Data Science, WPI, Founder and Director of the Inclusive Design and Accessibility (IDEA) Hub

I am currently a Professor of Information Technology and Data Science at Worcester Polytechnic Institute in the Robert A. Foisie School of Business. I am the Founder and Director of the Inclusive Design and Accessibility (IDEA) Hub at Worcester Polytechnic Institute, which was established in 2018 to address the needs of people with differing abilities across technologies and environments.

My research expertise centers on the intersection of technology and the user. Over the past 20 years, I have focused on how people feel about the technology they use and how technologies, such as mobile apps and social media, can improve users' experiences. I have brought my research expertise into my teaching and project advising as well.



Dr. Wei Ding

Associate Professor Computer Science, Director, Knowledge Discovery Lab, Chair CSM Senate, UMass Boston

Wei Ding received her Ph.D. degree in Computer Science from the University of Houston in 2008. She is an Associate Professor of Computer Science in the University of Massachusetts Boston. Her research interests include data mining, machine learning, artificial intelligence, computational semantics, and with applications to health sciences, astronomy, geosciences, and environmental sciences. She has published more than 130 referred research papers, one book, and has three patents. She is an Associate Editor of the ACM Transaction on Knowledge Discovery from Data (TKDD) and Knowledge and Information Systems (KAIS). She served as an editorial board member of the Journal of Information System Education (JISE), the Journal of Big Data, and the Social Network Analysis and Mining Journal. She is the recipient of the Best Paper Award at the 2011 IEEE International Conference on Tools with Artificial Intelligence (ICTAI), the Best Paper Award at the 2010 IEEE International Conference on Cognitive Informatics (ICCI), the Best Poster Presentation award at the 2008 ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (SIGSPATIAL GIS). She received the 2018 Outstanding Alumni Award and the Best PhD Work

Award between 2007 and 2010 from the University of Houston. Her research projects have been sponsored by NSF, NIH, NASA, and DOE. She is an IEEE senior member and an ACM senior member.



Dr. Valerie Barr

Chair of Computer Science, Jean E. Sammet Professor of Computer Science, Mount Holyoke College

I am the Jean Sammet Professor and chair in the Computer Science department at Mount Holyoke College. I was previously in the Computer Science Department at Union College. I spent 2013-2014 on temporary assignment to the National Science Foundation, serving as a program director in the Division of Undergraduate Education.

Before coming to Union, I was on the faculty at Hofstra University. During my graduate studies I also taught at Pratt Institute, Rutgers University, Mount Holyoke College, and Polytechnic University (now NYU Poly). I received my Masters degree from New York University and my Ph.D. from Rutgers University.