

Human Factors Symposium: Speakers

May 10–12 | Discovery Hall | Pacific Northwest National Laboratory

Chrissi Antonopoulos | Pacific Northwest National Laboratory

Chrissi Antonopoulos is a Senior Analyst in Pacific Northwest National Laboratory's (PNNL's) Building Systems Group focusing her work on the advancement of energy- and carbon-neutral buildings. Antonopoulos' research is primarily focused on residential buildings, where she supports projects focused on advanced thermal enclosures, indoor air quality, urban heat and wildfire impacts, and assessment of socio-demographics and equity in the residential building sector. Antonopoulos joined PNNL in 2010, and has a BS in business economics, and MS and PhD in urban studies from Portland State University.



Jessica Baweja | Pacific Northwest National Laboratory

Dr. Jessica Baweja is a social scientist at PNNL where she supports research and operations in human factors and insider threat. She holds a PhD in social-personality psychology and a master's degree in experimental psychology. She has conducted a wide variety of research projects, from exploring the psychological indicators of insider threat to exploring the ways that data scientists work with machine learning models. Prior to joining PNNL, she spent six years as a behavioral research scientist and manager for Northrop Grumman in personnel security and insider threat research supporting the U.S. Dept. of Defense Personnel and Security Research Center.



Atithi Bharth | Pacific Northwest National Laboratory

Atithi has 20+ years of experience in the aviation security industry. In addition to leading people from various departments her experience includes policy development and enforcement, insider threat, human factors, behavior detection, security and policy inspections/assessments, red/blue teaming, and project management with a great eye for detail as well as strong focus on principles of human factors and cyber security

Atithi has a BA in business administration from Warner Pacific College and completed all course work for MA in Homeland Security at Naval Postgraduate School. Currently in her career, she is a national Security Specialist at PNNL since May 2021 with focus on Air Transportation. She also supports the Office of Radiological Security Programs at PNNL. She is fluent in three languages.



Heather Burpee | University of Washington

Heather Burpee is a nationally recognized scholar in building energy efficiency and high-performance buildings. Her work bridges practice, research, and education with collaboration between practitioners, faculty, and students. She leads major national research initiatives that develop roadmaps for achieving deep energy goals and has experience working directly with design teams establishing and realizing deep energy reduction and other performance-related goals. As part of her commitment to furthering knowledge in the arena of high-performance buildings, she leads the development of professional education curricula including AIA Materials Matter, and AIA Getting to Zero. Burpee is a Pacific Northwest native and received her Master of Architecture degree from the UW College of Built Environments and her undergraduate degree in biology from Whitman College.



Julia Day | Washington State University

Julia Day is an Associate Professor at Washington State University where she teaches the building science courses for Architecture and Construction Management in the School of Design + Construction. Day is the Director of WSU's Integrated Design + Construction Lab (the ID+CL), and she also serves as the Associate Director of the Composite Materials Engineering Center. Day holds a joint appointment with the National Renewable Energy Laboratory.



Day is a recognized scholar in occupant behavior in buildings. As such, she is actively involved in several international and national organizations including the International Energy Agency EBC Programme Annex 79: Occupant-Centric Building Design and Operation, ASHRAE Education and Training Subcommittee for Building Operations and Management, the National Science Foundation Research Coordination Network on Sustainable Human-Building Ecosystems, and more.

Callie Chandler | Defense Personnel and Security Research Center

Callie Chandler is the Deputy Director of the Defense Personnel and Security Research Center – a division of DoD's Office of People Analytics. Chandler has over twenty years of experience managing applied social science research projects to improve national policies and programs. She received a MS in Public Affairs from Indiana University and a BS in political science from Reed College. Prior to working for the DoD, she provided analytical support to a regional crime analysis unit serving five jurisdictions. Chandler has authored or co-authored numerous reports on topics including automated data sources, continuous vetting, alternative investigative strategies, the SF-86, einterviews, workplace violence, and personality measures associated with corruption. In addition, she managed the development and numerous demonstrations of DoD's initial

Automated Continuous Evaluation System, which contributed to transformation of the personnel vetting process. Chandler continues to support improvements to personnel security and insider threat policies and programs through applied research and recommendations.

Erin Chiou | Arizona State University

Dr. Erin K. Chiou is an assistant professor of human systems engineering at Arizona State University and directs the Automation Design Advancing People and Technology Laboratory. Her recent work has focused on sociotechnical factors that affect decision making with AI-enabled automation in defense, security, healthcare, and manufacturing settings. Before Arizona, Erin received her PhD and MS in industrial and systems engineering from the University of Wisconsin-Madison where she was also a Graduate Engineering Research Scholar and a National Science Foundation graduate research fellow. Chiou spent several years before that at various companies in the medical device and international education industries. Chiou received her BS in psychology and philosophy from the



Aritra Dasgupta | New Jersey Institute of Technology

Dr. Aritra Dasgupta is an Assistant Professor in the Informatics department at the New Jersey Institute of Technology (NJIT). He develops and studies interactive visualization techniques for helping people understand and communicate with data. The goal of his research is to foster greater human-machine trust by the use of visualization as a transparent medium between computational methods and human insights. Before joining NJIT, Aritra was a researcher at New York University and at Pacific Northwest National Laboratory, where he led several interdisciplinary, data visualization projects working with experts from diverse domains such as biology, healthcare, climate science, and cybersecurity. Aritra directs NJIT's Intelligible Information Visualization lab, which engages students at all levels developing cutting edge, human-in-the-loop visualization techniques for transparent, data-driven decision-making. At NJIT, Dasgupta teaches courses on data visualization and visual analytics. Aritra earned his PhD in computing and information systems from the University of North Carolina.



Corey Fallon | Pacific Northwest National Laboratory

Dr. Corey Fallon is a human factors psychologist at Pacific Northwest National Laboratory (PNNL). He received his PhD in experimental psychology from the University of Cincinnati. He also has an MS in human factors psychology and has applied experience working as a Cognitive Systems Engineer before joining PNNL in 2018. Fallon's work at PNNL has focused on studying the human factors risks associated with the integration of new tools into existing workflows and



developing training and design solutions to mitigate these risks. Fallon's research focuses particularly on the human factors challenges associated with artificial intelligence and highly autonomous systems.

Zoe Gastelum | Sandia National Laboratories

Dr. Zoe Gastelum is a Principal Member of the Technical Staff in the International Safeguards and Engagements Department at Sandia National Laboratories. Gastelum has worked at Sandia since February 2015, in which time her research has focused on data analysis techniques, methods, and implications for international nuclear safeguards verification, the performance of human-information safeguards systems, and challenges and opportunities of emerging technologies for international safeguards.

Prior to joining Sandia, Gastelum spent five years as a nonproliferation scientist at Pacific Northwest National Laboratory conducting research on computational models and methods for information analysis in support of nuclear nonproliferation objectives, focusing on open-source data analysis, human behavioral modeling, and advanced information and communication systems for international nuclear safeguards. Gastelum also spent two years as an open-source information analyst in the International Atomic Energy Agency's Department of Safeguards, where she led the content development and distribution of a daily safeguards morning briefing for the Department of Safeguards, and conducted open source information analysis for over 20 countries per year.

Gastelum is the Deputy Chair of the Institute of Nuclear Materials Management's International Safeguards Technical Division, and the immediate past-Chair of the European Safeguards Research and Development Association's Verification Technologies and Methodologies Working Group.

Gastelum earned a BA in Political Science from the University of New Mexico and a MA in International Security from the University of Texas at Austin's Teresa Lozano Long Institute of Latin American Studies and has a graduate certificate in International Nuclear Law from the Université Montpellier 1 in France. She is currently earning a PhD in Public Policy at the Georgia Institute of Technology.



Peter Harms | University of Alabama

Peter Harms is the Frank Schultz Endowed Professor of Business in the Department of Management at the University of Alabama's Culverhouse College of Business. His research focuses on the assessment and development of leadership, personality, and psychological well-being. Harms has published more than 130 articles in leading journals and has been cited over 17000 times as well as featured in popular media outlets such as CNN, Scientific American, Forbes, and the BBC. He has also engaged in research partnerships with the U.S. Army, the National Aeronautics and Space Administration, and the U.S. Department of Labor. Harms was selected as one of the "100 Knowledge Leaders of Tomorrow" by the St. Gallen Symposium and the Network of Leadership Scholars recognized him as the "Standout Scholar of the Year" in 2021. He is a fellow of both the Society of Industrial and Organizational Psychology (SIOP) and the Association for Psychological Science and has twice received SIOP's Joyce and Robert Hogan Award for Personality and Work Performance Paper of the Year.



Tianzhen Hong | Lawrence Berkeley National Laboratory

Tianzhen Hong is a Senior Scientist with the Building Technology and Urban Systems Division of Lawrence Berkeley National Laboratory. His research employs interdisciplinary approaches to explore technologies and human factors for planning, design, and operation of energy efficient, demand flexible, and climate resilient buildings across scales. He published more than 180 journal articles, and is an IBPSA Fellow, ASHRAE Fellow, and Highly Cited Researcher 2021 and 2022. He led the development of two building energy software CBES and CityBES which won the R&D 100 Awards in 2019 and 2022.



Burhan Hyder | Pacific Northwest National Laboratory

Dr. Burhan Hyder joined PNNL in August 2022 and is currently working as a cyber-physical security engineer in the electricity security group. He received his PhD in electrical engineering from the Iowa State University in July 2022 with a focus on the cyber-physical security of smart grids. His research included game theoretic approaches in smart grids for cyber risk assessment, machine learning-based algorithms for cyber anomaly detection and mitigation in wide area control systems, and hardware/cyber-in-the-loop testbed development and experimentation for smart grid cybersecurity. During his PhD, Burhan interned at the ABB corporate research center in Raleigh, NC for three months where he worked on building energy management systems and machine learning-based fault detection and classification in distribution grids. He also interned at NextEra Energy in Story City, Iowa for three months where he worked on developing a testbed for the testing of power IGBTs for GE and Siemens wind turbines before field deployment.



His research interests include applications of AI in smart grids/CPS critical infrastructure, cyber-physical security of the smart grid, and hardware-in-the-loop testbeds.

Brett Jefferson | Pacific Northwest National Laboratory

Dr. Brett Jefferson is a data scientist, cognitive scientist, and mathematician at PNNL, where he's been for five years. Jefferson's technical interests include visual perception modeling, topological data analysis, and understanding the human factors in more efficient AI/ML partners. Brett serves as the Human Factors Thrust Lead for the Mathematics for Artificial Reasoning in Science (MARS) initiative at PNNL where he advises on how AI/ML technologies can incorporate user thinking and workflows in their design and training. Brett also serves as Team Lead of the Human Factors and Interactions team that is comprised of a range of human-centered researchers including psychologists, a neuroscientist, visual analytics researchers, and data scientists.



Laura Matzen | Sandia National Laboratories

Dr. Laura Matzen is a Distinguished Member of the Technical Staff in the Applied Cognitive Science department at Sandia National Laboratories in Albuquerque, NM. She received a Ph.D. in Cognitive Psychology with a concentration in Cognitive Neuroscience from the University of Illinois at Urbana-Champaign in 2008. Laura's primary research interests include human comprehension of data visualizations, visual cognition, language processing, and human-system interactions. Her work at Sandia focuses on using cognitive neuroscience methods to understand how humans process and remember information while performing complex reasoning tasks. This information is then used to improve human-system performance by ensuring that systems meet the user's cognitive needs.



Christopher Meek | University of Washington

Christopher Meek is Professor of Architecture at the University of Washington and Director of the Center for Integrated Design at the University's College of Built Environments. Professor Meek's areas of research include building energy performance for new construction and retrofits, daylighting, visual comfort, electric lighting, and climate responsive design. His work bridges practice, research, and education with collaboration between practitioners, faculty, and students. Under his leadership, the Center advances its mission through interconnected research, technical assistance, and educational programs that create impact in three primary areas: the development and advancement of tools, methods, and technologies to accelerate energy efficient buildings through peer-reviewed publications and competitive grant awards; influential



new construction and renovation projects that achieve exceptional energy performance targets and serve as a model for future buildings; and the delivery of educational programs and experiences that form the next generation of leaders in the building industry.

Over the past decade, Professor Meek has consulted on over 20 million square feet of commercial and institutional buildings including working, learning, and healing environments including the net-zero energy Bullitt Center in Seattle. His research has been funded by the Northwest Energy Efficiency Alliance, the National Science Foundation, the US Department of Energy, the Illuminating Engineering Society, the Bullitt Foundation, and the American Institute of Architects. Professor Meek teaches graduate and undergraduate level courses on building design and technology at the UW Department of Architecture.

He is the author of two books on daylighting design and was elevated to Fellowship in the American Institute of Architects in 2020.

Megan Morris | Air Force Research Laboratory

Dr. Megan Morris is a Research Psychologist in the Air Force Research Laboratory, 711th Human Performance Wing, Human Effectiveness Directorate, Cognitive Models branch (711HPW/RHWM). She received her PhD from Wright State University in 2014 in Human Factors and Industrial/Organizational Psychology. Her graduate work mainly focused on individual difference effects on workplace outcomes and workplace-related research on the Lesbian, Gay, Bisexual, Transgender, and Queer + community. She began her career with the Air Force Research Laboratory as a contractor with Ball Aerospace in the former Battlespace Visualization branch in 2015 where she supported visualization and throughput research. In 2016 she moved to the former Cognitive Science, Models, and Agents branch where she supported research on modeling fatigue, vigilance, and workload assessment and prediction. She then became a civilian in 2019 and leads the Fatigue and Sustained Attention Performance Impacts portfolio and is the Digital Models of Cognition Core Research Area Lead. She strives to advance fatigue modeling technology and push for individualization techniques in this portfolio and other collaborative work.



Bill Pike | Pacific Northwest National Laboratory

Dr. Bill Pike is Chief Science and Technology Officer (CSTO) for the National Security Directorate, where he guides organizational vision and strategy for PNNL's growing national security mission. The CSTO office is responsible for establishing long-term R&D strategy across PNNL's \$700 million national security portfolio, including nonproliferation and nuclear science, AI and advanced computing, chem/biodefense, and systems engineering and deployment. He guides organizational processes for assessing geopolitical and technological trends, market needs, and internal capability directions, and translates those into actionable strategies to deliver mission impact for sponsors. He also develops strategic institutional partnerships with leading universities, research institutes, and private companies to accelerate the development and delivery of novel capabilities for national needs in science, energy, and security.



Pike was Division Director for Computing and Analytics from 2014 to 2022, where he grew an R&D capability in advanced computing, data analytics, cybersecurity, and software engineering to nearly 550 staff. Previously, he was Technical Group Manager for Visual Analytics and the R&D coordinator for the National Visualization and Analytics Center.

Since joining PNNL in 2005, he has led R&D programs in threat discovery, energy reliability, disaster response, cyber situational awareness, and identity management, and has commercialized many of these capabilities. He is a passionate advocate for data-driven decision-making and has helped organizations enhance their performance and strategic planning processes through new analytics and data products. Pike holds a PhD from Pennsylvania State University and a BA from Carleton College.

Siobahn Rockcastle | University of Oregon

Siobhan is an Assistant Professor of Architecture at the University of Oregon, Director of the Baker Lighting Lab, Associate Director of IHBE, Hans Fischer Fellow at the Institute for Advanced Studies at TU Munich, and co-founder of OCULIGHT dynamics, a company offering specialized daylight design support to promote healthy indoor occupation. She explores topics at the intersection of architectural design, environmental dynamics, human perception, and lighting performance with a focus on well-being. At the University of Oregon, Siobhan teaches courses on studio design at the graduate and undergraduate levels, environmental design, building simulation, and lighting. Siobhan's current research uses simulation and virtual reality to model experiential lighting environments and conduct experiments on human health and perception. She was awarded the 2021 ARCC New Researcher Award and joined the editorial board of LEUKOS as an Associate Editor in 2023. She received her PhD in 2017 from the LIPID lab in the Doctoral Program in Architecture and Sciences of the



City (EDAR) at the Swiss Federal Polytechnic in Lausanne, Switzerland (EPFL). Siobhan earned her professional BArch from Cornell University in 2008 and her SMArchS degree in Building Technology from MIT in 2011, graduating with a top Thesis Award from the department of architecture. She has co-authored more than 25 peer-reviewed research papers and was awarded the 'Best Paper' at SimAUD 2012 and again at SimAUD 2020. Since her arrival at University of Oregon in 2018, Siobhan has brought in more than \$400,000 in external funding as PI/Co-PI. During her time at EPFL, she co-authored 350,000 CHF worth of successful grant applications and was awarded 46,000 CHF in start-up funding to launch OCULIGHT dynamics.

Michael Royer | Pacific Northwest National Laboratory

Dr. Michael Royer is a chief engineer at PNNL, where he leads the Lighting Quality and Optimization research task for the DOE Lighting R&D program. More broadly, his research covers human factors in buildings, color science, human computer interactions, and methodology in psychophysics. Royer is a Fellow of the Illuminating Engineering Society (IES) and serves on the IES Vision Science Committee and the IES Color Committee. He is an associate editor for the journal *Lighting Research & Technology*.



Karma Sawyer | Pacific Northwest National Laboratory

Dr. Karma Sawyer is the Director of the Electricity Infrastructure and Buildings (EI&B) Division, responsible for shaping and managing a vision and strategy to assure that PNNL addresses DOE's most important energy efficiency, clean energy, and electricity infrastructure challenges. The EI&B Division consists of more than 400 staff members in six technical groups.

Prior to joining PNNL, Karma served as the Program Manager for Emerging Technologies at DOE's Building Technologies Office. In this role, she developed and executed multi-year R&D strategies across a range of building technologies. She also worked collaboratively with the national labs and external stakeholders to advance cross-cutting initiative, such as the Grid-interactive Efficient Buildings, Advanced Building Construction and Grid Modernization Initiatives. From 2010-2013, Sawyer served as an Assistant Program Director and Fellow at ARPA-E, focusing on carbon capture and thermal storage technologies.

Sawyer earned a PhD in chemistry from the University of California, Berkeley in 2008. She also holds a BS in chemistry from Syracuse University.



Diane Staheli | Department of Defense Chief Digital and AI Office

Diane Staheli serves as the Chief Digital and Artificial Intelligence Officer (CDAO) Chief of Responsible Artificial Intelligence. Staheli joined CDAO from Massachusetts Institute of Technology Lincoln Laboratory, where she led a research group focused on AI assurance and advanced AI research. She has more than 20 years of experience in AI, technology development, data analytics, human factors, and cyber operations. Previously Staheli managed programs supporting the Intelligence Community, U.S. Cyber Command, the Joint Artificial Intelligence Center, the Combatant Commands and the Air Force. She has also worked in industry at a home networking startup and a global information security company. She holds an MA degree in software engineering from Harvard University and an MS degree in human factors from Bentley University.



Mallory Stites | Sandia National Laboratories

Dr. Mallory Stites is a Senior Member of the Technical Staff in the Applied Cognitive Science Department at Sandia National Laboratories. Stites received her PhD in Psychology from the University of Illinois in 2014, where she studied language comprehension processes using techniques such as eye-tracking and human electrophysiology. After working as a postdoctoral research associate at Binghamton University studying developmental neuroscience, she joined the technical staff at Sandia National Laboratories in 2016. At Sandia, Stites has conducted cognitive science experiments and technology assessments across several technical fields and programs, including nuclear nonproliferation, cybersecurity, explainable machine learning, data visualization, human decision making, and homeland security.



Margaret Taylor | Lawrence Berkeley National Laboratory

Margaret Taylor's research addresses decision-making related to the invention, adoption, and diffusion of technologies and services that help reduce climate change emissions and impacts. Her expertise spans policy and business issues related to renewables and storage; demand response and 8760-load flexibility; sustainable transportation, with a long-standing emphasis on electric vehicles; building and appliance energy efficiency; and power plant emissions control technologies. She is currently a Lawrence Berkeley National Laboratory Research Scientist affiliated with several units of the University of California, Berkeley, where she was a public policy professor from 2002-11. Previous affiliations include a Fulbright Canada Research Chair at the University of Ottawa, member of Stanford University's Precourt Energy Efficiency Center, and co-Chair of the Behavior Energy Climate Change conference. Taylor's research has won awards from the Academy of Management and the Society for Risk Analysis.



Ruth Taylor | Pacific Northwest National Laboratory

Ruth Taylor currently serves as a project manager in the Building Systems Group at Pacific Northwest National Laboratory where she contributes to several projects focused on the application and development of solid-state lighting and advanced controls. She began her career at PNNL in 1984 and has managed a number of projects for the Department of Energy including the outreach and deployment activities for the Building Energy Codes Program, the Commercial Lighting Solutions web tool development and implementation activities, as well as the management of the Commercially Available LED Product Evaluation and Reporting program.



Taylor pioneered the application of observational research to the study of advanced lighting system adoption barriers through DOE's Next Generation Lighting Systems (NGLS) Program. NGLS is a highly successful, nationally recognized program which uses observational research to discover and document challenging human and technology intersections to find solutions to complicated, human-centered barriers to connected lighting system deployment. NGLS 's goal is to identify approaches that work, reveal needed improvements, and publish findings for the benefit of the lighting and energy efficiency communities.

Currently Taylor is working with industry to find solutions to the complex people focused issues discovered through NGLS observations. She is also managing a new DOE initiative focused on applying the lessons learned from NGLS to key human-centric barriers to the adoption of advanced RTU controls.

Dennis Thomas | Pacific Northwest National Laboratory

Dr. Dennis Thomas is a Senior Computational Scientist at the U.S. Department of Energy's Pacific Northwest National Laboratory. His research interests are in mathematical modeling and simulations of biological and chemical systems, and on the development of computational methods and tools for molecular modeling, network analysis, and AI applications. He holds a MS and a PhD in Chemical Engineering from Washington University in St. Louis, and a BS in Chemical Engineering from the Indian Institute of Technology, Chennai, India.



Susan Varnum | Pacific Northwest National Laboratory

Bio pending.



Jennifer Veitch | National Research Council Canada

Bio pending.

**Jesse Willett | Pacific Northwest National Laboratory**

Bio pending.

Julia Wright | Army Research Laboratory

Dr. Julia L. Wright is a research psychologist with the U.S. Army Research Laboratory. Wright has a track record as a forerunner in developing and implementing technologies. She holds a patent for innovative gas burner assembly methods. Her background as a product design engineer gives her research an interdisciplinary foundation that focuses on bridging the intuitive gap between humans and technology – primarily focusing on agent transparency, human performance, situation awareness, trust, and anthropomorphism in human-agent teams. She is a co-developer of the Situation awareness-based Agent Transparency model, a resource for assessing and developing transparent agent interfaces. Wright's leadership in the human factors field includes chairing the awards committee for the Women's Mentoring and Networking (WOMAN), an affinity group of HFES, and co-chairing the AHFE Human Factors in Simulation conference track. Her commitment to furthering the science of human factors research includes regularly reviewing submissions for multiple peer-reviewed publications, conferences, and grant submissions for various government organizations. Dedicated to developing the next generation of STEM researchers, she enjoys mentoring graduate students from multiple disciplines.

