

**SEAS Vitae AY 2024-2025****Peer-Reviewed Publications****2025**

Abolhassani, B., **J. Tadrour**, A. Eryilmaz, and S. Yüksel (2024) "Optimal Push and Pull-Based Edge Caching for Dynamic Content," *IEEE/ACM Transactions on Networking* 32(4), pp. 2765-2777.

**Baumgardner, M.E.**, A. Graves, K. Hilt, L. Larson, and C. Nordell (2025) "Improving Efficiency and Emissions in a Small Displacement Gasoline Engine with Hydrogen- Enriched Natural Gas," *Journal of Energy Resources Technology, Part A* 1(3): 031203.

**Capobianchi, M.** and R. Cangelosi (2025) "Exact Insulated-Tip Fin Length Correction for Tip Convection Compensation," *ASME Journal of Heat and Mass Transfer* 146(7), July: 074501.

Goswami, N., **J.A. Schultz**, K. Zhang, R.A. Swartz, D.M. Dowden, and S.M. Morse (2025) "Estimation of Surface Flaw Parameters for Annealed Glass Using Maximum Likelihood Estimator and Comparison with Historical Estimated Surface Flaw Parameters for Weathered and New Annealed Glass Samples," *Journal of Architectural Engineering* 31(2): 04025011.

He, H., S.Y. Liou, **K.K. Shimabuku**, P. Zhou, Y. Choi, J.S. Meschke, M.C. Roberts, Y. Lee, and M.C. Dodd (2025) "Degradation and Deactivation of Intracellular Bacterial Antibiotic Resistance Genes by Commonly Used Healthcare and Personal Care Disinfectants," *Environmental Science & Technology*.

**Sprint, G.**, M. Schmitter-Edgecombe, R. Weaver, L. Wiese, and D. Cook (2025) "CogProg: Utilizing Large Language Models to Forecast In-the-moment Health Assessment," *ACM Transactions on Computing for Healthcare* 6(2): 20.

**2024**

**Crandall, A.** and J. Crandall (2024) "Large Language Model-Supported Software Testing with the CS Matrix Taxonomy," *Journal of Computing Sciences in Colleges* 40(1), pp. 49-58.

Liu, Z., **M. Zhang**, A. Saberi, and A.A. Stoorvogel (2024) "Scalable Exact Output Synchronization of Discrete-time Multi-agent Systems in the Presence of Disturbances and Measurement Noise With Known Frequencies," *International Journal of Robust and Nonlinear Control* 34(18), December, pp. 12071-12093.

Liu, Z., **M. Zhang**, A. Saberi, and A.A. Stoorvogel (2024) "Scale-Free Collaborative Protocol Design for Exact Output Synchronization of Multi-Agent Systems in the Presence of Disturbances and Measurement Noise With Known Frequencies," *IEEE Transactions on Network Science and Engineering*, November, pp. 1-12. DOI: 10.1109/TNSE.2024.3433604

Orr, D., C. Payne, H. Jones, J. Anderson, A. Sperry, **B. Sargent**, B. Frankel, L. Howell, and A. Bowden (2024) "Leveraging Compliance to Design a Minimally Invasive, Expandable Interbody Cage Capable of Customized Anatomical Fit for Spinal Fusion Surgery," *Journal of Medical Devices* 18(1): 011001.

Seats, D.C., **J.A. Schultz**, and J.V. Carstensen (2024) "Automatic Design Generation of Trusses from a Reused Steel Stock Library Using Graphic Statics," *Journal of Building Engineering* 98: 111166.

**Schultz, J. A.**, and G. Dojan (2024). "Comparative Efficiency and Performance of Glass Design Methods," *Journal of Architectural Engineering* 30(4): 06024004.

Sheffield, J.L., **B. Sargent**, and L.L. Howell (2024) "Embedded Linear-Motion Developable Mechanisms on Cylindrical Developable Surfaces," *Journal of Mechanisms & Robotics* 16: 015001.

**Shimabuku, K.K.**, T. Henrie, D. Schultise, and S. Pillai (2024). "Modeling Chloramine Stability and Disinfection Byproduct Formation in Groundwater High in Bromide," *AWWA Water Science*, 6(1): e1365

**Sprint, G.**, D. Cook, and M. Schmitter-Edgecombe (2024) "HDTwin: Building a Human Digital Twin using Large Language Models for Cognitive Diagnosis," *JMIR Formative Research*, 8:e63866.

Weeks, D., E. Crooks, K. O'Brien, **G. Sprint**, G. Carter, and K. Honn (2024) "A Parallel-Group Randomized Controlled Trial of Blue Light Versus Red Light for Improving Sleep, Fatigue, and Cognition Following Stroke: Pilot Results and Recommendations," *Contemporary Clinical Trials* 147, December: 39510247.

Woodside, J., H. Jashami, D. Hurwitz, **R. Young**, and K. Chang (2024) "Safety Relevant Driver and Bicyclist Behaviors Resulting from Bicycling Rolling Stops Observed in a Networked Driving and Bicycling Simulator," *Transportation Research Part C: Emerging Technologies* 166, September: 104754

## Peer-Reviewed Conference Proceedings

### 2025

**Chen, T.** (2025) "Effects of Helical Ridges on Internal Flow over a Large Range of Flow Conditions," *Proceedings of the (ASME) Summer Heat Transfer Conference*, July 08-11, Westminster CO.

**Ganzerli, S.**, and G. Cardani (2025) "Breath of New Life for the Ruins of Villa Aprilia of Lancia Family in the Italian Alps (1800 m)," In: Milani, G., Ghiassi, B. (eds) *18th International Brick and Block Masonry Conference, Lecture Notes in Civil Engineering* 614. DOI: 10.1007/978-3-031-73310-9\_55

Ha, J., C. Cachet, **L. Demarest (Johnson)**, S. Ahmad, and B. Fuller (2025). "Private Eyes: Zero-leakage Iris Searchable Encryption," *Proceedings of the Fifteenth ACM Conference on Data and Application Security and Privacy (to appear)*, June, Pittsburgh, PA.

**Ji, Y.**, J. Zhang-Lea, and J. Tran (2025) "Integrating HRV and Activity Data for ADHD Classification Using Machine Learning Methodologies," Alsadoon, A., Shenavarmasouleh, F., Amirian, S., Ghareh Mohammadi, F., Arabnia, H.R., Deligiannidis, L. (eds) *Health Informatics and Medical Systems and Biomedical Engineering; Communications in Computer and Information Science* 2259, April. DOI: 10.1007/978-3-031-85908-3\_33

Skinner, M., A. Geyser, **B. Sargent**, S. Magleby, and L. Howell (2024) "Compliant Stepped-Beam Analysis for Deployable Space Structures With Flexible Panels," *Proceedings of the 2024 ASME International Design Engineering Conferences*, November. DOI: 10.1115/DETC2024-142798

Skvortsov, E., S. Mirjafari, O. Garg, Y. Xia, **S. Bowers**, B. Ludäscher (2025) "LogicLM: Robust Application of Large Language Models with Logic Programming for Data Analytics," *Proceedings of the 28th International Conference on Extending Database Technology, EDBT 2025*, Barcelona, Spain, March 25–28, pp. 1086-1089.

**Zhang, M.** and G. Maki (2025) "Complementary Pass Transistor Logic: A Logic Family," *World Academy of Science, Engineering and Technology International Journal of Electrical and Computer Engineering* 19(3), International Conference on Computing, Electrical and Electronic Engineering (ICCEEE), Arizona, March.

## 2024

Avitabile, G., K.L. Man and **C. Talarico** (2024) "DDS-PLL Architecture for Adaptive Beam Steering," *IEEE 21st Proc. of International System-on-Chip Design Conference (ISOCC)*, Sapporo, Japan, August.

**Bowers, S.**, Y. Xia, B. Ludäscher (2024) "On the Structure of Game Provenance and its Applications," The 16th International Workshop on the Theory and Practice of Provenance (TaPP)—*Proceedings of the IEEE European Symposium on Security and Privacy Workshops (EuroS&P)*, July 8-12, Vienna, pp. 602–609.

**Bowers, S.**, Y. Xia, B. Ludäscher (2024) "The Skeptic's Argumentation Game or: Well-Founded Explanations for Mere Mortals," *Proceedings of the 5th International Workshop on Systems and Algorithms for Formal Argumentation (SAFA)*, September 17, Hagen, Germany, pp. 104–118.

Chang, P., T. Adegbiya, Y., **C. Talarico**, A. Li, and J. Roveda (2024) "Deep Inverse Design for High-Level Synthesis," *ArXiv*, July, DOI: 10.48550/arXiv.2407.08797

**Crandall, A.**, **B. Fischer**, and J. Crandall (2024) "WIP: ARTful Insights from a Pilot Study on GPT-Based Automatic Code Reviews in Undergraduate Computer Science Programs," *IEEE Frontiers in Education Conference (FIE)*, October 13-16. DOI: 10.1109/FIE61694.2024.10893407

Florio, A., G. Coviello, **C. Talarico**, and G. Avitabile (2024) "Adaptive Beamsteering Architecture based on AoA Estimation with Phase Shift on LO-Path for 5G NR," *Proceedings of IEEE 9th International Conference on Smart and Sustainable Technologies (SpliTech)*, June, Split, Croatia, pp. 25–28. DOI: 10.23919/SpliTech61897.2024.10612586

Florio, A., G. Coviello, **C. Talarico**, and G. Avitabile (2024) "Adaptive DDS-PLL Beam-Steering Architecture Based on Real-Time Angle-of-Arrival Estimation," *IEEE 67th Midwest Symposium on Circuits and Systems (MWSCAS)*, Springfield, Massachusetts, August. DOI: 10.1109/MWSCAS60917.2024.10658775

**Ji, Y.**, J. Zhang-Lea, and J. Tran (2024) "Machine Learning-Based Automated Detection of ADHD Using Heart Rate Variability Data," *EPiC Series in Computing v101, Proceedings of the 16th International Conference on Bioinformatics and Computational Biology (BICOB)*, pp. 49–57.

Meyer, M.C. and **Y. Wang** (2024) "Use of Ball-based Movement for Omnidirectional Collaborative Carry Robot Systems," *IEEE 17th International Symposium on Embedded Multicore/Many-core Systems-on-Chip (MCSoc)*, Kuala Lumpur, Malaysia, pp. 39-45. DOI: 10.1109/MCSoc64144.2024.00016.

**Muszynski, M.** (2024) "Dynamic Cone Penetrometer and Relative Compaction Relationships for Silty Sands, with a Comparison to Clean, Poorly-Graded Sands," in *Proceedings of the 72nd Annual Geotechnical Engineering Conference*, February 23, Minneapolis, MN, pp. 143-151.

**Olivares, D.**, J. Kubicki, and K. Imhof (2024) "A Framework for Developing Collaborative Community Building Tools for Novice Computer Science Students. Tareq Ahram and Waldemar Karwowski (eds) *Human Factors in Design, Engineering, and Computing. AHFE (2024) International Conference*. AHFE Open Access, vol 159. AHFE International, USA. DOI: [10.54941/ahfe1005761](https://doi.org/10.54941/ahfe1005761)

Sanford, K., **R. Young**, and A. Bielefeldt (2024) "Teaching First-year Student to See Infrastructure Issues as Equity Issues," *American Society of Engineering Education Annual Conference & Exposition*, Portland, Oregon. June: 10.18260/1-2--48062

Skvortsov, E., Y. Xia, **S. Bowers**, B. Ludäscher (2024) "From Logic Programming to Programming in Logica: A First-Course in Declarative Data Science & Engineering," *The Prolog Education Workshop, in the Workshop Proceedings of the 40th International Conference on Logic Programming (ICLP)*, October 12–13, Dallas, Texas.

Skvortsov, E., Y. Xia, **S. Bowers**, B. Ludäscher (2024) "The Logica System: Elevating SQL Databases to Declarative Data Science Engines," *Proceedings of the 5th International Workshop on the Resurgence of Datalog in Academia and Industry (Datalog-2.0)*, October 11, Dallas, Texas, pp. 69–73.

Xia, Y., D. Odekerken, **S. Bowers**, B. Ludäscher (2024) "Layered Visualization of Argumentation Frameworks," *Proceedings of the 10th International Conference on Computational Models of Argument (COMMA)*, September 18-20, Hagen, Germany, pp. 373–374.

## Conference Presentations

### 2025

Braun, L., M. Gorrell, and **S. Niezgoda** (2025) "Design and Evaluation of a Beaver Dam Analog Complex on Thompson Creek" (Poster Presentation), Northwest Stream Restoration Symposium, River Restoration Northwest, Stevenson, WA. Feb 3-6.

**Niezgoda, S.** (2025) "Beaver Dam Analogs in Thompson Creek," Presentation in the Habitat Protection and Restoration in the Spokane River Watershed Session of the Spokane River Forum Conference. Spokane, WA. April 23.

**Niezgoda, S.** (2025) "Evaluation of Beaver Dam Analogs in Thompson Creek" (Lightning Talk), Northwest Stream Restoration Symposium, River Restoration Northwest, Stevenson, WA. Feb 4-6.

### 2024

**Shimabuku, K.**, N. Hoefer, E. Ross, R. Cole, K. Bladon, and A. Hohner (2024) "Spatial Variability in Dissolved Organic Matter and DBP Precursor Treatability by PAC Across a Burned Watershed" (Oral Presentation), American Water Works Association - Water Quality Technology Conference, Schaumburg, IL. November 17-21.

**Shimabuku, K.**, X. Jin, S. Kolstoe, R. Cole, K. Wampler, K. Bladon, and A. Hohner (2024) "Wildfire Impacts on Water Quality and Treatment Processes in the Pacific Northwest," American Water Works Association – Pacific Northwest Section Annual Conference, Spokane, WA, May 1-3.

Wijerathna, S., R. Cole, K. Bladon, **K. Shimabuku**, and A. Hohner (2023) “Spatial Variability in Dissolved Organic Matter and DBP Precursor Treatability by Coagulation Across a Burned Watershed” (Oral Presentation), American Water Works Association - Water Quality Technology Conference, Schaumburg, IL. November 17-21.

**Young, R** (2024) “Characterizations of Expert and Public Perception of Bicycle Rolling Stop Laws: Public Hazard or Practical Convenience?” Presented at the 2024 Annual Meeting of the Transportation Research Board, Washington, D.C., January.

## Workshops/Short Course/Seminars

### 2025

**Niezgoda, S.** (2025) Facilitator and Instructor, 1D/2D Modeling with HEC-RAS 6.4.1. Four-week (online) professional development course. ASCE Inland Empire Section Technical Seminar Series. Spokane, WA, January 10 – February 7. (20 PDHs).

**Niezgoda, S.** (2025) Co-Facilitator and Instructor, Physical Processes Short Course “Hydrology,” “Hydraulics” and “Intro to Modeling” modules (2 hours each). Stream Restoration Certificate Program, Environmental Professional Program, Portland State University, Portland, OR, March 24 – 28. (6 PDHs)

**Niezgoda, S.** (2025) Instructor, Site Evaluation and Assessment Short Course, “Watershed Assessment,” “Surveying,” and “Stream Discharge” modules (2-4 hours each). Stream Restoration Certificate Program, Environmental Professional Program, Portland State University, Portland OR, June 3-6.

**Niezgoda, S.** (2025) Instructor, EPP River Restoration Survey Course, “Hydrology,” and “Hydraulics” modules (1 hour each). Stream Restoration Certificate Program, Environmental Professional Program, Portland State University, Online.

## Honors & Awards

**Rhonda Young** was inducted into the Academy of Distinguished Engineers, Oregon State University.

**Meirong Zhang** received Best Presentation Award, International Conference on Computing, Electrical and Electronic Engineering (ICCEEE), Arizona, March 2025.

## Funded Research

**Niezgoda, S.**, B. Bancroft, M. Matthews, and D. Cleary (2025). “Evaluation and Adaptive Management of a Beaver Dam Analog Complex for Retaining Sediment and Total Phosphorus in Thompson Creek,” The Lands Council, WA Dept of Ecology, 2025–2028, \$94,999.

Matthews, M., C. Andrade, N. D'Souza, D. Cleary, and **S. Niezgoda** (2025). "Investigating the Impacts of Phosphorus on Aquatic Microbial Communities in Spokane River Major Tributaries" (Phosphorus Analyzer Xylem FS3700), State of Washington Water Research Center, \$65,000.

**Schultz, J** (2025) AISC Fellowship Grant, "Thin-walled Steel Shapes," \$5,000.

### **Other Scholarly Activity**

**De Palma, P.**, Appointed Visiting Scholar, Department of Speech and Hearing Science, Elson S. Floyd College of Medicine, Washington State University to study day-long recordings of child speech, 2024-2025.

**Muszynski, M**, Governor on the Board of Governors, Order of the Engineer.

**Muszynski, M**, Member of the Community, Housing & Human Services Affordable Housing Subcommittee, City of Spokane.

**Niezgoda, S.**, Member, River Restoration Northwest, Portland OR.

**Niezgoda, S.**, Member, Spokane Salmon Restoration Collaborative, Lead Entity Team Technical Committee, Spokane, WA

**Niezgoda, S.** Graduate Committee Member, for Hattie Greydanus, Hydraulic and Hydrology Modeling of Beaver Dam Analogs, Master of Science in Civil Engineering. University of Georgia, Athens, GA.

**Schultz, J**, Innovation Scholar Fellowship, American Institute of Steel Construction, Chicago, IL USA, 2024.

**Schultz, J**, Member, APA Standards Committee ANSI/APA PRG 320 on Cross-Laminated Timber.

**Schultz, J**, Member, WoodWorks North American Mass Timber Technical Subcommittee.

**Schultz, J**, Reviewer, Journal Architectural Engineering American Society for Civil Engineers.

**Schultz, J**, Senior Associate, Director of Mass Timber, Siegel Structural Engineers, Spokane WA, USA.

**Young, R**, Member, Bicycle Advisory Board and Transportation Subcommittee of the Planning Commission, City of Spokane.

**Young, R**, Associate Editor for the ASCE Journal on Civil Engineering Education.

## **Student Accomplishments, Awards**

### **2025**

ASCE Student Chapter's Concrete Canoe Team took Second Place Overall, with the following category awards: First Place in Technical Presentation, Second Place in Final Product Prototype and Project Proposal categories, and Third Place in Overall Races at the ASCE Pacific Northwest Student Symposium, Portland State University, April 2025.

### **2024**

Orion Hess, Cash Hilstad and Mark Reggiardo (Computer Science) won second place in the International Collegiate Programming Competition, Washington State Division 2, placing 22nd out of all 82 Division 2 teams in the Pacific Northwest, and the highest-ranking team east of the Cascades, Nov. 16, 2025. Two other Gonzaga teams competed, placing 47<sup>th</sup> and 63rd.

Matt Udell (Mechanical Engineering, Engineering Management, '25) earned 2<sup>nd</sup> place in the 2024 Society for the Advancement of Material and Process Engineering (SAMPE®) University Research Symposium Competition in San Diego with his research paper, "Composite Deltoid Material Selection for Optimizing T-joint Tensile Strength."

Team “Water Security Against Wildfire Impacts” earned First Place, Student Design Competition, Pacific Northwest Clean Water Association. The national conference invited the team to represent Gonzaga and the Pacific Northwest October 2024 in New Orleans, LA.