ALAN WANG

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Education

University of Virginia (UVa) — Charlottesville, VA
Ph.D. in Computer Engineering (GPA: 3.85, h-index: 2) — *Jan. 2018 – Current*

University of Southern California (USC) — Los Angeles, California
Bachelor of Architecture (GPA: 3.45), minor in Applied Computer Security (GPA: 3.91) — *Aug. 2012 – May 2017*

Research

Accepted First Author Publications

- **Wang, A.**, Su, J., Heydarian, A., Campbell, B., & Beling, P. (2020, November). Is my sensor sleeping, hibernating, or broken? A data-driven monitoring system for indoor energy harvesting sensors. In Proceedings of the 7th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation (pp. 210-219).
- **Wang, A.**, & Heydarian, A. (2019). Exploring the Effects of Lighting Brightness and Color on Occupancy and Emotions. In Computing in Civil Engineering 2019: Smart Cities, Sustainability, and Resilience (pp. 1-7). Reston, VA: American Society of Civil Engineers.

Other Accepted Publications

- Pisello, A. L., I. Pigliautile, M. Andargie, C. Berger, P. M. Bluyssen, S. Carlucci, G. Chinazzo et al. "Test rooms to study human comfort in buildings: A review of controlled experiments and facilities." Renewable and Sustainable Energy Reviews 149 (2021): 111359.
- Rantas, J., Wang, D., Jarrard, W., Sterchi, J., **Wang, A.**, Varnosfaderani, M.P. and Heydarian, A., 2021, April. A User Interface Informing Medical Staff on Continuous Indoor Environmental Quality to Support Patient Care and Airborne Disease Mitigation. In 2021 Systems and Information Engineering Design Symposium (SIEDS) (pp. 1-6). IEEE.
- Heydarian, A., Pantazis, E., **Wang, A.**, Gerber, D., & Becerik-Gerber, B. (2017). Towards user centered building design: Identifying end-user lighting preferences via immersive virtual environments. In Automation in Construction, 81, 56-66.
- Gerber, D. J., Pantazis, E., & **Wang, A.** (2017). A multi-agent approach for performance-based architecture: Design exploring geometry, user, and environmental agencies in façades. In Automation in Construction, 76, 45-58.
- Gerber, D. J., Pantazis, E., & **Wang, A.** (2017). Interactive Design of Shell Structures Using Multi Agent Systems: Design Exploration of Reciprocal Frames Based on Environmental and Structural Performance.
- Pantazis, E., Gerber, D., & **Wang, A.** (2016). A Multi-Agent System for Design: Geometric Complexity in Support of Building Performance. Proc. SimAUD, 137-146.

Papers Under Review

- **Wang, A.**, Heydarian, A., Campbell, B. Building Aware Light Inferences (BALI): An optimal light sensor deployment technique for applications in smart buildings, Submitted to BuildSys'21
- Le, T., **Wang, A.**, Yao, Y., Feng, Y., Heydarian, A., Sadeh, N., Tian, Y. Occupants' awareness, perception, and notification preference of IoT Devices in Smart Buildings, Submitted to NDSS'22

Funded Research Projects

- Virginia Commonwealth Cyber Initiative (CCI), Building Aware Light Sensing, *2020*
- UVa Engineering in Medicine (EIM), *2020*

Proposals

- Figures, National Science Foundation (NSF) FW-HTF-RM: Preserving Worker Privacy in Data-Driven Smart Workspaces, *Fall 2019*
- Figures and edits, NSF CPS Medium: User-Centered Design for Preserving Privacy in Human-Building Interactions, *Fall 2019*

Patents

- Arsalan Heydarian, Brad J. Campbell, Peter Beling, **Alan Wang** and Jianyu Su. Data-Driving Monitoring System for Energy Harvesting Sensors and Related Methods Thereof. U.S. Provisional Patent 63/107,204, filed on October 29, 2020.

Awards

- **NSF Cyber Physical Systems Principle Investigators Meeting Graduate Student Presentation**, Second Place, *Summer 2021*
- **NSF Innovation-Corps (I-Corps)**, Oct/Nov Cohort, *Fall 2019*
- **NSF I-Corps**, May/June Cohort, *Summer 2019*
- **NSF Graduate Research Fellowship Program**, Honorable Mention, *2019*
- **NSF Research Experiences for Undergraduates**, *2016 - 2018*
- **USC First Generation Mentorship**, *Spring 2015*

Presentations

- Building Aware Light Sensing, Commonwealth Cyber Initiative (CCI) Central Virginia Node Summer Meeting, *Summer 2021*
- A Systematic Approach to Preserve Privacy in Smart Buildings , International Energy Agency (IEA) Energy in Buildings and Communities Programme (EBC) Annex 79, Occupant-centric building design and operation, *Spring 2020*
- Occupant behavior + interactions with building interfaces, IEA EBC Annex 79, *Fall 2019*
- Ubiquitous computing and human-centric sensing to enhance occupant experience and building operations, UVa Thornton Society, *Fall 2019*
- UVa Link Lab Open House, *Spring 2019*
- UVa Link Lab Open House, *Spring 2018*

Coursework/Teaching

Official Coursework

Engineering Interactive Technologies (A+) — Computer Science
Professor Seongkook Heo — *Spring 2021*

- Final project: Augmented Reality Sandbox, an augmented reality sandbox game that challenges the traditional adversarial component games by incorporating players with and without video game affinities in participatory roles.

Robots and Humans (A) — Computer Engineering
Professor Tariq Iqbal — *Spring 2021*

- Final project: How Can Robots Better Serve Food?, a human robot interaction experiment that establishes a general food serving method for the NAO robot to give food suggestions based on calorie count with the combination of other features.

Embedded Computing and Robotics (A) — Computer Engineering
Professor Joanne Dugan — *Fall 2019*

- Final project: TI Robot Systems Learning Kit MAX, a line-reading robot using the MSP-EXP432P401R, TI-RSLK chassis board, 8 Channel QTRX sensor array for line sensing, and left and right bump switch sensors for obstacle detection, and 2x Gear motor and encoder assembly.

Computer Architecture (CR) Computer Engineering
Professor Ron Williams *Spring 2020*

- Final project: Designing and Implementing a RISC Processor in VHDL

User Experience Design (A) Systems Engineering
Professor Gregory Gerling *Spring 2019*

- Final Portfolio: three user interfaces designed for three different clients ranging from: the Albermarle Fire Department, alarm.com, and the University of Virginia.

Defense Against the Dark Arts (B) Computer Science
Professor Jack Davidson *Spring 2019*

- Final project: Fuzzing a Heart Model, we explore two different types of heart models within Matlab Simulink as a way to extend the concept of fuzzing into the realm of cyber-physical systems: 1) a pacemaker model which paces the atrioventricular node and its relationship via conduction with the sinoatrial node, and 2) a Heart Systemic Pulmonary (HSP) model that models the human cardiovascular system, including the pulmonary and systemic circulatory systems.

Principles of Modeling for Cyber Physical Systems (A) Computer Science
Professor Madhur Behl *Fall 2018*

- Report repository includes: state space building and modeling, parameter estimation, transition systems and linear temporal logic.

Cognitive Systems Engineering (A-) Systems Engineering
Professor Stephanie Guerlain *Spring 2018*

- Final project: Charlottesville Time Bank, design of a user interface based on *The Design of Everyday Things*.

Reinforcement Learning (A) Systems Engineering
Professor Peter Beling *Spring 2018*

- Final project: Agents of Risk, Explorations using different reinforcement learning methods to solve the game of Risk.

Additional Training

- **PhD+ Entrepreneurship Series**, Dr. David Touve, *Spring 2021*
- **Solemma Symposium**, Jon Sargent, *Spring 2020*
- **Knowledge Entrepreneurship**, Dr. Bernard Carlson and Elizabeth Pyle, *Fall 2019*
- Evidn-Cognitive Behavioral Science Initiative (CBSI) **Behavioral Science Training**, Dr. John Pickering and Katri Haanterä, *Fall 2019*
- **Communicating Research**, Marlit Hayslett, *Fall 2019*
- **PhD+ Foundation Series**, Dr. Sonali Majumdar, *Fall 2018*
- **Graduate Writing Lab**, Dr. Kelly Cunningham, *Summer & Fall 2018*

Teaching

- **Teaching Assistant**, Smart and Healthy Buildings, *Expected Fall 2021*
- **Engineering Systems and Environment Capstone Mentor**, A User Interface Informing Medical Staff on Continuous Indoor Environmental Quality to Support Patient Care and Airborne Disease Mitigation, *Spring 2020 - Fall 2021*
- **Instructor**, Yfalos Workshop - Digital Futures, *Summer 2020*
- **Teaching Assistant**, Introduction to Construction Management, *Fall 2019*
- **Teaching Assistant**, Building Information Modeling, *Spring 2019*

Mentoring

- **Feng-Yi Chang**, Computer Engineering masters, *Summer 2021 - Present*
- **Jacob Rantas**, Systems Engineering undergraduate, *Spring 2020 - Spring 2021*
- **Xingyu Liu**, Architecture Undergraduate, *Fall 2018 - Spring 2019*
- **Eric Dong**, Architecture and Computer Science undergraduate, *Fall 2018 - Spring 2019*
- **Mary Robertson**, Civil Engineering undergraduate, *Spring 2018*
- **Hannah Jones**, High School, *Summer 2018*

Degree Progress

- Qualifying Exam, *July 2020*

Service

- Manuscript Review for Science and Technology for the Built Environment, *Summer 2021*
- Taiwanese Graduate Student Association (TGSA), President, *2021 - Current*
- Manuscript Review for Building and Environment, *Spring 2020*
- TGSA, Vice and Interim President, *2019 - 2020*
- UVa Engineering Systems and Environment Recruitment Weekend, *Spring 2019*
- Link Lab Committee on Culture and Livability, Secretary, *Spring 2018 - Fall 2019*
- UVa Judo Club, *2018 - Current*
- VISAS, English Language Volunteering, *Spring 2018*
- USC Trojan Judo Club, *2012-2017*