IanRiley

PhD Candidate

about

Tulsa, OK
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github/ttowncompiled

interests

self-adaptive systems, formal methods, internet-of-things, distributed algorithms, software engineering, and STEM education (K-12 and higher)

education

’18-’21 **PhD Candidate in Computer Science** — the University of Tulsa
gpa: 3.81

’16-’18 **Masters in Computer Science** — the University of Tulsa
gpa: 3.75

’13-’16 **BS Computer Science and Mathematics** — the University of Tulsa
gpa: 3.51

assistanceships

’19-’21 **Graduate Assistant** — Dean’s Office
Supported the Dean’s office as a course assistant and in their transition to a centralized advising office with paperless forms.

’18-’19 **Teaching Assistant** — Computer Science
Course assistant for the department’s intro to computer programming course and lab, which taught programming principles in Java to over 100 first-year students.

’16-’18 **Research Assistant** — Software Engineering and Architecture Team
Supported the design, development, integration, and testing of an IoT wearable testbed. Research investigations across four grants, including two with the Air Force Research Labs (AFRL).

fellowships and awards

’20-’21 **Dean's Fellowship** — the University of Tulsa
Supported the Dean’s office with student first-year experience and assisted the department in its transition to the use of fully electronic records.

’20 **Sarah and John Graves Cyber Security Fellowship** — the University of Tulsa
Investigated security assurance and integration of IoT wearable testbeds while mentoring first-time graduate and undergraduate researchers.

’18 **Best Paper Nomination** — HICSS 51
Publication ”Securing Wearables through the Creation of a Personal Fog” was nominated for the Best Paper Award (top 10%).

’17 **Best Paper Nomination** — HICSS 50
Publication ”Toward Predicting Secure Environments for Wearable Devices” was nominated for the Best Paper Award (top 10%).

research

’19-’20 **Formal Methods** graduate research
Constructed architectures and techniques to apply formal methods to IoT simulations and testbeds.

’18-’19 **AFRL: Embedding Verification Awareness** graduate research
Developed a framework to embded verification awareness into self-repairing systems. The framework uses meta-data extracted from formal verification proof processes to evaluate the risk of reusing compliance guaranteeing processes to assure adaptations against critical requirements.

’17-’18 **AFRL: Resilient Mission Planning** graduate research
Designed an algorithm that will assign tasks to a number of deployed assets, and will unassign/reassign tasks as necessary to best satisify mission constraints, such as drone survival, intel retrieval, etc.

’17 **eLynx Technologies** graduate research
Applied network security and machine learning techniques to a local oil & gas company sponsored project.

’16-’17 **Pump Profiling** graduate research
Developed a prediction algorithm that would use machine learning to study gas pump data, create a gas pump profile, and then predict when the gas pump was going to fail.

’16 **Red** undergraduate research
Evaluation of Red, a bioinformatics tool for detecting repeats denovo in nucleotide sequences.

’13-’14 **RFID Research Grant** undergraduate research
Developed protocols to concisely and securely store standard, adult vaccination information on 2000 bit RFID tags.

’13 **Tulsa Undergraduate Research Challenge** undergraduate research
Worked with a small team to design a dynamic risk access control system. This system extended the spatial access control model by employing PGMs such as Bayesian networks and Markov chains for decision making.

conferences

’20 **SISSY 2020** Virtual
Presented publication ”Toward a Negotiation Framework for Self-Integration”.

’18 **AAMAS 2018** Stockholm, Sweden
Presentied publication ”MTL Robustness for Path Planning with A*.”

’18 **21st TU Annual Student Research Colloquium** Tulsa, OK, US
Presented publication ”Employing the SI Network Model to Evaluate Network Propagation in Bluetooth MANets.”

’15 **AngularConnect 2015** London, UK
Presented work on the TactialJS library as a member of the Angular Team.

teaching experience

’16 **Software Development and Industrial Practices** cs 3862
I headed a small team of young students through the process of designing and implementing, using industrial techniques and design patterns, an in-browser module loader for JavaScript applications, and an online social media application.

’15 **Software Tools and Practices** cs 3861
I instructed a small group of young students on proper Agile development, Test driven design, and the use of Version Control systems as they each implemented their own code linter.

industry experience

’15 **Google MTV** SWE intern on Angular
Designed and implemented the TacticalJS data persistence library for Angular. Tactical was my first attempt at creating the MVP for a new project using formal design patterns and techniques.

’14 **Google CAM** EP intern on Pinpoint
Implemented an internal UI to improve the workflow for creating pipelines of structured data for search.This was my first opportunity to think critically about end user experience and test driven design.

organizations

’14-’15 **Linux Users Group** president
Conducted several meetings and headed a few projects over the course of the year which included research ventures into topics such as code reusability, workstation efficacy, net neutrality, and even bitcoins.

’13-’15 **Tulsa Web Devs** member && contributor
Contributed to numerous local and national civic hacking events targeting areas such as local city organization, public health, and food equality.

’13-’15 **Association of Computing Machinery** operations chair
Facilitated over two dozen lunch and learns, covering various topics, each year. I have also helped organize several collegiate and civic hackathons as well as have spearheaded a few extended hackathons focused on building code confidence in freshmen programmers.

publications

’20 **Evaluating Verification Awareness as a Method for Assessing Adaptation Risk** 1st author, journal revise & resubmit

Riley I., Jahan S., Marshall A., Walter C., Gamble R., “Evaluating Verification Awareness as a Method for Assessing Adaptation Risk”, Future Generation Computer Systems, Sept. 2020 (revise & resubmit).

’20 **Assessing Adaptations based on Change Impacts** 2nd author

Jahan S., Riley I., Gamble R., “Assessing Adaptations based on Change Impacts”, 1st IEEE International Conference on Autonomic Computing and Self-Organizing Systems, Aug. 2020. DOI: 10.1109/ACSOS49614.2020.00025.

’20 **Extending Context Awareness by Anticipating Uncertainty with Enki and Darjeeling** 2nd author

Jahan S., Riley I., Walter C., Gamble R., “Extending Context Awareness by Anticipating Uncertainty with Enki and Darjeeling”, 4th Workshop on Self-Aware Computing, Aug. 2020. DOI: 10.1109/ACSOS-C51401.2020.00051.

’20 **Toward a Negotiation Framework for Self-Integration** 1st author

Riley I., Jahan S., Gamble R., “Toward a Negotiation Framework for Self-Integration”, 7th Self-Improving Systems Integration Workshop, Aug. 2020. DOI: 10.1109/ACSOS-C51401.2020.00038.

’20 **MAPE-K/MAPE-SAC: An interaction framework for adaptive systems with security assurance cases** 2nd author, journal

Jahan S. , Riley I., Walter C., Gamble R., M. Pasco, P. K. McKinley, B. H. C. Cheng, “MAPE-K/MAPE-SAC: An interaction framework for adaptive systems with security assurance cases”, Future Generation Computer Systems, Mar. 2020. DOI: 10.1016/j.future.2020.03.031.

’19 **Evaluating the Impact of Design Constraints on Expected System Performance** 1st author

Riley, I. and Gamble, R.F., “Evaluating the Impact of Design Constraints on Expected System Performance,” 4th International Workshop on Engineering Collective Adaptive Systems, June 2019. DOI: 10.1109/FAS-W.2019.00032.

’18 **Using System Profiling for Effective Degradation Detection** 1st author

Riley, I. and Gamble, R.F., “Using System Profiling for Effective Degradation Detection,” Proceedings of the 15th IEEE International Conference on Autonomic Computing, Sept. 2018. DOI: 10.1109/ICAC.2018.00028.

’18 **Predictive Path Planning Algorithm Using Kalman Filters and MTL Robustness** 3rd author

Alqahtani, S., Taylor, S., Riley, I., Gamble, R.F., and Mailler, R., “Predictive Path Planning Algorithm Using Kalman Filters and MTL Robustness,” Proceedings of the 2018 IEEE International Symposium on Safety, Security, and Rescue Robotics (SSRR), Philadelphia, PA, Aug. 2018. DOI: 10.1109/SSRR.2018.8468646.

’18 **Employing the SI Network Model to Evaluate Network Propagation in Bluetooth MANETs** 1st author

Riley, I. and Gamble, R.F., “Employing the SI Network Model to Evaluate Network Propagation in Bluetooth MANETs,” Proceedings of the IEEE International Conference on Internet of Things, July 2018. DOI: 10.1109/ICIOT.2018.00017.

’18 **MTL Robustness for Path Planning with A*** 2nd author

Alqahtani, S., Riley, I., Taylor, S., Gamble, R.F., and Mailler, R., “MTL Robustness for Path Planning with A,” Proceedings of the 17th International Conference on Autonomous Agents and Multiagent Systems, July 2018. DOI: 10.5555/3237383.3237425.*

’18 **Task Allocation in Uncertain Environments using a QuadTree and Flow Network** 2nd author

Alqahtani, S., Riley, I., Taylor, S., Gamble, R.F., and Mailler R., “Task Allocation in Uncertain Environments using a QuadTree and Flow Network,” Proceedings of the 2018 International Conference on Unmanned Aircraft Systems, June 2018. DOI: 10.1109/ICUAS.2018.8453382.

’18 **Securing Wearables through the Creation of a Personal Fog** 2nd author

Walter, C., Riley, I., and Gamble, R.F., “Securing Wearables through the Creation of a Personal Fog,” Proceedings of the 51st Hawaii International Conference on System Sciences, nominated for Best Paper Award (top 10%), Jan. 2018. DOI: 10.24251/HICSS.2018.694.

’17 **Toward Predicting Secure Environments for Wearable Devices** 2nd author

Walter, C., Riley, I., He, X., Robards, E., and Gamble, R.F., “Toward Predicting Secure Environments for Wearable Devices,” Proceedings of the 50th Hawaii International Conference on System Sciences, nominated for Best Paper Award (top 10%), Jan. 2017. DOI: 10.24251/HICSS.2017.701.

’16 **Configuring an appropriate team environment to satisfy relevant criteria** 2nd author

Walter, C., Riley, I., and Gamble, R.F., “Configuring an Appropriate Team Environment to Satisfy Relevant Criteria,” 2016 IEEE Frontiers in Education Conference (FIE), 2016. DOI: 10.1109/FIE.2016.7757707.