

Paul Gazzillo

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Academic Experience

Appointments at University of Central Florida

- 2018-Now Assistant Professor, Department of Computer Science
- 2018-Now Core Member, Cyber Security and Privacy Faculty Research Cluster
- 2022-Now Secondary Joint Appointment, Department of Electrical and Computer Engineering

Previous Academic Experience

- 2017-2018 Research Scholar, Stevens Institute of Technology, Hoboken, NJ
Co-Advisors: Eric Koskinen (Stevens Institute) and Michael Hicks (UMD College Park)
- 2016-2017 Post-Doctoral Associate, Yale University, New Haven, CT
Advisor: Eric Koskinen
- 2014-2015 MacCracken Fellow, New York University, New York, NY
Advisor: Thomas Wies
- 2011-2014 Research Assistant, New York University, New York, NY
Advisor: Robert Grimm
- 2010 Junior Research Scientist (Summer), New York University, New York, NY
Advisor: Robert Grimm

Education

- 2016 PhD Computer Science, Courant Institute, New York University, New York, NY
Advisors: Robert Grimm, Thomas Wies
Thesis: Analyzing Source Code Across Static Conditionals
Fellowships: MacCracken (2014-2015); Global Research Initiative (Spr 2013)
- 2011 MS Computer Science, Courant Institute, New York University, New York, NY
Advisor: Robert Grimm
Thesis: Configuration-Preserving C Parsing
- 2003 BS Computer Science and Mathematics, Rutgers University, New Brunswick, NJ

Awards and Honors

- Apr 2021 DARPA Young Faculty Award
- Jan 2020 NSF CAREER Award
- Oct 2012 SIGPLAN Research Highlight for SuperC (PLDI 2012)
- May 2012 Matthew Smosna Prize, Courant Institute, New York University

Sponsored Research and Funding

External Grants: As Principal Investigator

1. NSF CCRI-2234909 Collaborative Research: CCRI: Planning-C: A Community for Configurability Open Research and Development (ACCORD)
\$50k (100%) share; Jun. 2023 to Dec. 2024; PI: Paul Gazzillo. (This is part of a \$100k multi-institution grant with Myra B. Cohen at Iowa State.) https://nsf.gov/awardsearch/showAward?AWD_ID=2234909
2. DARPA YFA: Tracking Corporate Relationships at Scale with Automated Reasoning.
\$491k (100% share); Aug. 2021–2023; PI: Paul Gazzillo. <https://www.darpa.mil/attachments/YFAAwardees2021.pdf>
3. NSF CCF-1941816 CAREER: Inferring and Securing Software Configurations through Automated Reasoning.
\$419k (100% share); Jun. 2020–2025; PI: Paul Gazzillo. https://nsf.gov/awardsearch/showAward?AWD_ID=1941816
4. NSF CCF-1840934 SHF: Small: Collaborative Research: Static Analysis Infrastructure for Variability-Aware Bug Detection and Translation of Highly-Configurable Software Systems.
\$229k (100% share); Oct. 2018–2022; PI: Paul Gazzillo. (This is part of a \$470k multi-institution grant with Shiyi Wei at UT Dallas.) https://nsf.gov/awardsearch/showAward?AWD_ID=1840934
 - Research Experience for Undergraduates (REU) Supplement \$8k, Summer 2020
 - Research Experience for Undergraduates (REU) Supplement \$16k, Summer 2019

External Grants: As Senior Personnel

5. NSF DGE-2042996 CyberCorps Scholarship for Service: Workforce Training and Preparation in Cybersecurity and Privacy
\$2.9mil (2% share); Feb. 2021–2026; PI: Changchun Zou; Co-PIs: Yan Solihin, Michael Posey, David Mohaisen, Yao Li. https://nsf.gov/awardsearch/showAward?AWD_ID=2042996

University-Level

6. Exploratory Research: Studying How Programmers Express Ideas as Code to Improve Software Security
\$25k (100% share); Aug. 2022–2023
7. Strategic Investment Program: Advancing Interdisciplinary Cyber Security and Privacy Research at UCF
\$150k (20% share); Fall 2021–Spring 2022; Mary Jean Amon, Paul Gazzillo (Lead), Gary T. Leavens, Yao Li, David Mohaisen, Yan Solihin, Liqiang Wang, Changchun Zou. <https://provost.ucf.edu/sip-awards/>
8. Strategic Investment Program: Online Master of Science in Cybersecurity and Privacy at the University of Central Florida
\$175k (10% share); Fall 2021–Spring 2022; Mary Jean Amon, Paul Gazzillo, Gary T. Leavens, Yao Li, David Mohaisen (Lead), Yan Solihin, Liqiang Wang, Changchun Zou. <https://provost.ucf.edu/sip-awards/>

Industry Experience

- 2018 Core Team, Taraxa.io
- 2013 Software Engineering Intern (Summer), Google, Mountain View, CA
- 2009 Financial Software Development Intern (Summer), Bloomberg LP, New York, NY
- 2004-2008 Research Data Analyst, Educational Testing Service, Princeton, NJ

Refereed Journal Articles

1. “Static Data-Flow Analysis for Software Product Lines in C: Revoking the Preprocessor’s Special Role”^{*} by Philipp Dominik Schubert, Paul Gazzillo, Zach Patterson, Julian Braha[†], Fabian Schiebel, Ben Hermann, Shiyi Wei, Eric Bodden. Automated Software Engineering (ASE), 2022. <https://doi.org/10.1007/s10515-022-00333-1>
2. “Adding Concurrency to Smart Contracts”^{**} by Thomas Dickerson, Paul Gazzillo, Maurice Herlihy, and Eric Koskinen. Distributed Computing (DIST), Volume 33, June, 2020. <https://doi.org/10.1007/s00446-019-00357-z>
3. “How to add concurrency to smart contracts”^{**} by Thomas Dickerson, Paul Gazzillo, Maurice Herlihy, and Eric Koskinen. Bulletin of the European Association for Theoretical Computer Science (EATCS). ISSN 0252-9742. Number 124. 22-33, February 2018. <https://eatcs.org/images/bulletin/beatcs124.pdf>

Refereed Conference Proceedings

1. “(To Appear) Maximizing Patch Coverage for Testing of Highly-Configurable Software without Exploding Build Times”^{*} by Necip Fazıl Yıldırım[†], Jeho Oh[†], Julia Lawall, and Paul Gazzillo. Proceedings of the ACM International Conference on the Foundations of Software Engineering (FSE), 2024.
2. “(To Appear) Semantic Analysis of Macro Usage for Portability”^{*} by Brent Pappas[†] and Paul Gazzillo. Proceedings of the International Conference on Software Engineering (ICSE), 2024. <https://doi.org/10.1145/3597503.3623323>
3. “Bringing Together Configuration Research: Towards a Common Ground”^{||} by Paul Gazzillo and Myra B. Cohen. Onward! 2022: Proceedings of the 2022 ACM SIGPLAN International Symposium on New Ideas, New Paradigms, and Reflections on Programming and Software. <https://doi.org/10.1145/3563835.3568737>
4. “SugarC: Scalable Desugaring of Real-World Preprocessor Usage into Pure C”^{*} by Zach Patterson, Zenong Zhang, Brent Pappas[†], Shiyi Wei, and Paul Gazzillo. Proceedings of the International Conference on Software Engineering (ICSE), 2022. <https://doi.org/10.1145/3510003.3512763>
Acceptance Rate: 26% (197 out of 751 submissions)

[†]Graduate Research Assistant Advisee

^{††}Graduate Research Assistant Co-advisee

[‡]Undergraduate Research Assistant Advisee

^{||}Co-first authors

^{*}Authors in student/post-doc contribution order with principal/senior researchers at the end

^{**}Authors in alphabetical order

5. “Finding Broken Linux Configuration Specifications by Statically Analyzing the Kconfig Language”^{†*} by Jeho Oh^{††}, Necip Fazil Yildiran[†], Julian Braha[‡], and Paul Gazzillo. Proceedings of the 29th ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), 2021. <https://doi.org/10.1145/3468264.3468578>
Acceptance Rate: 24% (97 out of 396 submissions)
6. “SeMPE: Secure Multi Path Execution Architecture for Removing Conditional Branch Side Channels”^{*} by Andrea Mondelli, Paul Gazzillo, and Yan Solihin. 2021 58th ACM/IEEE Design Automation Conference (DAC), 2021. <https://www.doi.org/10.1109/DAC18074.2021.9586183>
Acceptance Rate: 23%
7. “Inferring and Securing Software Configurations Using Automated Reasoning” by Paul Gazzillo Proceedings of the 28th ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering, Visions & Reflections Track (ESEC/FSE VR), 2020. <https://doi.org/10.1145/3368089.3417041>
Acceptance Rate: 38% (8 out of 21 submissions)
8. “Conflict Abstractions and Shadow Speculation for Optimistic Transactional Objects”^{*} by Thomas Dickerson, Eric Koskinen, Paul Gazzillo, and Maurice Herlihy. Asian Symposium on Programming Languages and Systems (APLAS), 2019. https://www.doi.org/10.1007/978-3-030-34175-6_16
Acceptance Rate: 44% (22 out of 50 submissions)
9. “t-wise Coverage by Uniform Sampling”^{*} by Jeho Oh^{††}, Paul Gazzillo, and Don Batory. Proceedings of the 23rd International Systems and Software Product Line Conference, Challenge Track (SPLC CC), 2019. <https://doi.org/10.1145/3336294.3342359>
10. “An Empirical Study of Real-World Variability Bugs Detected by Variability-Oblivious Tools”^{*} by Austin Mordahl, Jeho Oh^{††}, Ugur Koc, Shiyi Wei and Paul Gazzillo Proceedings of the 2019 27th ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), 2019. <https://doi.org/10.1145/3338906.3338967>
Acceptance Rate: 24% (74 out of 303 submissions)
11. “Conditional Compilation is Dead, Long Live Conditional Compilation!”^{*} by Paul Gazzillo and Shiyi Wei. “Proceedings of the 41st International Conference on Software Engineering: New Ideas and Emerging Results (ICSE NIER)”, 2019. <https://doi.org/10.1109/ICSE-NIER.2019.00035>
Acceptance Rate: 27% (25 out of 92 submissions)
12. “Localizing Configurations in Highly-Configurable Systems”^{**} by Paul Gazzillo, Ugur Koc, ThanhVu Nguyen, and Shiyi Wei. Proceedings of the 22Nd International Systems and Software Product Line Conference, Challenge Track (SPLC CC), 2018. <https://doi.org/10.1145/3233027.3236404>
13. “Kmax: Finding All Configurations of Kbuild Makefiles Statically” by Paul Gazzillo. Proceedings of the 2017 11th Joint Meeting on Foundations of Software Engineering (ESEC/FSE), 2017. <https://doi.org/10.1145/3106237.3106283>
Acceptance Rate: 24% (72 out of 295 submissions)
14. “Adding Concurrency to Smart Contracts”^{**} by Thomas Dickerson, Paul Gazzillo, Maurice Herlihy, and Eric Koskinen. Proceedings of the ACM Symposium on Principles of Distributed

Computing (PODC), 2017. <https://doi.org/10.1145/3087801.3087835>

Acceptance Rate: 25% (38 out of 154 submissions)

15. “Brief Announcement: Proust: A Design Space for Highly-Concurrent Transactional Data Structures”^{**} by Thomas Dickerson, Paul Gazzillo, Maurice Herlihy, and Eric Koskinen. Proceedings of the ACM Symposium on Principles of Distributed Computing (PODC), 2017. <https://doi.org/10.1145/3087801.3087866>
16. “Decomposition Instead of Self-Composition for Proving the Absence of Timing Channels”^{**} by Timos Antonopoulos, Paul Gazzillo, Michael Hicks, Eric Koskinen, Tachio Terauchi, and Shiyi Wei. Proceedings of the 38th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI). <http://dx.doi.org/10.1145/3062341.3062378>
Acceptance Rate: 15% (47 out of 322 submissions)
17. “SuperC: Parsing All of C by Taming the Preprocessor”^{*} by Paul Gazzillo and Robert Grimm. Proceedings of the 33rd ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI), pp. 323-334, June 2012. <https://doi.org/10.1145/2345156.2254103>
Acceptance Rate: 19% (48 out of 255 submissions)
SIGPLAN Research Highlights Paper

Refereed Workshop Proceedings

1. “Proof-Carrying Smart Contracts” by Thomas Dickerson, Paul Gazzillo, Maurice Herlihy, Vikram Saraph, and Eric Koskinen. Workshop on Trusted Smart Contracts (WTSC), 2018. https://doi.org/10.1007/978-3-662-58820-8_22

Technical Reports

1. “Uniform Sampling from Kconfig Feature Models” by Jeho Oh^{††}, Paul Gazzillo, Don Batory, Marijn Heule, and Maggie Myers. Technical Report TR-19-02, Department of Computer Science, University of Texas at Austin, 2019. <https://apps.cs.utexas.edu/apps/tech-reports/171355>
2. “Multi-Objective Optimization in Large Software Product Lines” by Jeho Oh^{††}, Don Batory, and Paul Gazzillo. Technical Report TR-18-02, Department of Computer Science, University of Texas at Austin, 2018. <https://apps.cs.utexas.edu/apps/tech-reports/106830>
3. “Proust: A Design Space for Highly-Concurrent Transactional Data Structures” by Thomas Dickerson, Paul Gazzillo, Maurice Herlihy, and Eric Koskinen. arXiv:1702.04866v1 16 Feb 2017. <https://arxiv.org/abs/1702.04467>
4. “Vertical Composition of Reversible Atomic Objects” by Timos Antonopoulos, Paul Gazzillo, Eric Koskinen, and Zhong Shao. Technical Report YALEU/DCS/TR1529, Computer Science Department, Yale University, 2016. <http://cpsc.yale.edu/sites/default/files/files/tr1529.pdf>
5. “Kmax: Analyzing the Linux Build System” by Paul Gazzillo. Technical Report TR2015-976, Computer Science Department, New York University, 2015. <https://cs.nyu.edu/media/publications/TR2015-976.pdf>

6. “Parsing all of C by taming the preprocessor” by Paul Gazzillo and Robert Grimm. Technical Report TR2011-939, Computer Science Department, New York University, 2011. <https://cs.nyu.edu/media/publications/TR2011-939.pdf>

Patents

- 2017 Adding Concurrency to Smart Contracts (patent pending)
- 2014 Configuration-Preserving Preprocessor, 9,389,842, issued 2016
- 2013 Configuration-Preserving Preprocessor and Configuration-Preserving Parser, 8,806,456, issued 2014
- 2008 Data Structure for Defining a Chart, application 2008/0086679
- 2008 Method and System for XML Multi-Transform, 9,189,464, issued 2015

Dissertation

- 2016 “Analyzing Source Code Across Static Conditionals” by Paul Gazzillo. PhD Thesis, Department of Computer Science, New York University.

Advising

PhD Researchers

- 2022-Now Sanan Hasanov
- 2021-Now Brent Pappas
- 2022-2023 Stephen Maldonado
- 2019-2022 Jeho Oh, University of Texas at Austin, Co-Advised with Prof. Don Batory (Graduated, Joined Applied)
- Fall 2022 Austin Davis
- 2020-2022 Necip Yildiran (Graduated, Joined Google as an SWE)
- Fall 2021 Ronaldo Cunha
- 2020-2021 Ryan Dozier (Co-Advised with Prof. Damian Dechev)
- Fall 2019 Sayma Sultana

MS Researchers

- 2021-Now Zoran Kolega (Spring 2021 as undergraduate)
- Sum 2023 Rodrigo Vena Garcia
- 2021-2022 Kaarthik Alagappan (2019-2021 as undergraduate) (Graduated, Joined Walmart)
- Fall 2021 Julian Braha (2019-2021 as undergraduate)

Software Engineers

- 2021-Now John Stoner

Undergraduate Researchers

- 2023-Nov Martin de Salterain, Fall 2023 CAHSI REU Mentee
- 2021-Nov Tsehai Boucaud, Undergraduate Research Assistant and Spring 2022 CAHSI REU Mentee
- Spr 2024 Alexei Solonari, EXCEL Program
- Spr 2024 Noah Isaacson, EXCEL Program
- Spr 2024 Fabian Ruiz Delgado, EXCEL Program
- 2023 Sharu Abraham, Undergraduate Research Assistant and Spring 2023 CAHSI REU Mentee
- 2020-2021 Alexandra Arriola, EXCEL Program and Undergraduate Research Assistant
- 2019-2021 Genoveva Fossas, Undergraduate Research Assistant (Joined NEU as a CS PhD student)
- 2019-2021 Joshua Santana, NSF Research Experience for Undergraduates (2019), Undergraduate Research Assistant (Joined Microsoft as an engineer)
- Spr 2020 Reeder Ward, Undergraduate Research Assistant
- Sum 2019 Pradheep Kethi-Reddy, NSF Research Experience for Undergraduates (REU)
- Spr 2019 Jia Jin Koay, Undergraduate Research Assistant

PhD Dissertation Committees

As Chair

- 2020-2022 Necip Fazıl Yıldıran, Computer Science, University of Central Florida

As Member

- 2023-Nov Alexander Goponenko, Computer Science, University of Central Florida
- 2022-Nov Derrick Greenspan, Computer Science, University of Central Florida
- 2022-2023 Zachary Patterson, Computer Science, University of Texas at Dallas
- 2021-2022 Jeho Oh, Computer Science, University of Texas at Austin
- 2019-2022 Bingbing Rao, Computer Science, University of Central Florida
- 2019-2021 Amirfarhad Nilizadeh, Computer Science, University of Central Florida
- 2020-2021 Vamsee Reddy Kommareddy, Computer Engineering, University of Central Florida
- 2020 Mohammed Abuhamad, Computer Science, University of Central Florida

Masters Thesis Committees

- 2021-2022 Committee Member, Kohei Koja, Computer Science, University of Central Florida
- 2020-2021 Committee Member, Faishal Wahiduddin, Computer Science, University of Central Florida

Honors Thesis Committees

- 2019-2020 Committee Member, Curtis Helsel, Computer Science, University of Central Florida

Independent Studies

- Sum 2020 Zachary Lyons, Analysis of Configurable Software.

Senior Design Projects

- 2020 Learning Programming with the 2DS (Spring and Fall 2020)
- 2020 Security fault prediction, continued (Spring and Fall 2020)
- 2019 Security fault prediction (Spring and Fall 2019)
- 2019 Cyptocurrency exchange (Spring and Fall 2019)
- 2019 Concurrent smart contracts (co-sponsor) (Spring and Fall 2019)

Teaching Experience

As Instructor

- Spr 2023 Instructor, COP-5621 Compiler Construction, University of Central Florida
Teaching Evaluations: Overall 4.25 out of 5.00
(4 of 6 students responding)
(Department: 3.98; University: 4.17)
- Spr 2022 Instructor, COP-5621 Compiler Construction, University of Central Florida
Teaching Evaluations: Overall 5.00 out of 5.00
(6 of 10 students responding)
(Department: 3.97; University: 4.17)
- Spr 2021 Instructor, COP-5611 Operating Systems Design Principles, University of Central Florida
Teaching Evaluations: Overall 4.38 out of 5.00
(13 of 27 students responding)
(Department: 4.12; University: 4.18)
- Fall 2020 Instructor, COP-3402 Systems Software, University of Central Florida
Teaching Evaluations: Overall 4.59 out of 5.00
(68 of 120 students responding)
(Department: 4.03; University: 4.15)
- Spr 2020 Instructor, COP-5021 Program Analysis, University of Central Florida
Teaching Evaluations: Overall 4.45 out of 5.00
(13 of 23 students responding)
(Department: 3.89; University: 3.97)
- Fall 2019 Instructor, COP-3402 Systems Software, University of Central Florida
Teaching Evaluations: Overall 4.20 out of 5.00
(155 of 249 students responding)
(Department: 3.97; University: 4.14)
- Spr 2019 Instructor, COP-3402 Systems Software, University of Central Florida
Teaching Evaluations: Overall 4.05 out of 5.00
(77 of 199 students responding)
(Department: 3.99; University: 4.15)
- Fall 2018 Instructor, COP-3402 Systems Software, University of Central Florida
Teaching Evaluations: Overall 4.49 out of 5.00
(126 of 215 students responding)
(Department: 4.00; University: 4.12)

As Assistant

- Spr 2015 Recitation Leader, Data Structures, New York University
- Fall 2014 Recitation Leader, Data Structures, New York University
- Spr 2010 Teaching Assistant, Compilers, New York University
- Spr 2010 Teaching Assistant, Operating Systems, New York University
- Fall 2009 Teaching Assistant, Computer Organization, New York University

Talks

- Sep 2021 “Finding Unmet Dependencies in Kconfig with the Kismet Static Analyzer”, The Linux Foundation, OSS 2021
- Aug 2021 “Finding Broken Linux Configuration Specifications by Statically Analyzing the Kconfig Language”, ESEC/FSE 2021
- Apr 2021 “Helping Linux Maintainers Localize Configurations: Progress towards a Comprehensive Solution”, FOSD 2021
- Nov 2020 “Inferring and Securing Software Configurations using Automated Reasoning”, Visions and Reflections, ESEC/FSE 2020
- Oct 2020 “When You Come to a Fork in the Road, Take It: Finding Configuration Constraints from Kconfig, Kbuild, and the C Preprocessor”, Open Source Summit Europe, The Linux Foundation
- Mar 2020 “Free Software Enables Free Science”, LibrePlanet 2020
- Aug 2019 “Good Engineering Makes for Good Science”, The Third ROSE Festival, ESEC/FSE 2019, Tallinn, Estonia
- June 2019 “Conditional Compilation is Dead, Long Live Conditional Compilation!”, The International Conference on Software Engineering: New Ideas and Emerging Results Track, Montreal, Canada
- May 2019 Guest Talk: “Can We Replace the Preprocessor by Extending C?”, The 3rd Summit on Advances in Programming Languages, Providence, RI
- May 2019 Invited Talk: “Security Considerations for Highly-Configurable Software”, 1st International Conference on Smart Tourism, Smart Cities and Enabling Technologies.
- Sep 2018 “Localizing Configurations in Highly-Configurable Systems”, International Systems and Software Product Line Conference, Challenge Track, Gothenburg, Sweden
- Mar 2018 “Automating Safe and Secure Software Development”, University of South Florida, Tampa, FL
- Mar 2018 “Automating Safe and Secure Software Development”, University of Central Florida, Orlando, FL
- Feb 2018 “Automating Safe and Secure Software Development”, University of Vermont, Burlington, VT
- Sep 2017 “Kmax: Finding All Configurations of Kbuild Makefiles Statically”, European Software Engineering Conference and Foundations of Software Engineering (ESEC/FSE).
- Jul 2017 “Adding Concurrency to Smart Contracts”, Symposium on Principles of Distributed Computing (PODC), Washington, DC

- Jun 2017 “Decomposition Instead of Self-Composition for Proving the Absence of Timing Channels”, Programming Language Design and Implementation (PLDI), Universitat Politècnica de Catalunya, Barcelona, Spain
- Jun 2017 “Decomposition Instead of Self-Composition for Proving the Absence of Timing Channels”, New England Programming Languages and Systems Symposium (NEPLS), University of Massachusetts, Lowell, MA
- Apr 2017 Invited Talk: “Adding Concurrency to Smart Contracts”, Shanghai Jiao Tong University, Shanghai, China
- Mar 2017 “Enabling Variability-Aware Software Tools” Feature-Oriented Software Development Conference (FOSD), Technische Universität Darmstadt, Darmstadt, Germany
- Sep 2016 “Tackling Variability Bugs”, NJ Programming Languages and Systems Seminar (NJPLS), Rutgers University, NJ
- Jan 2016 Invited Talk: “Enabling Variability-Aware Software Tools”, Carnegie Mellon University Institute for Software Research, Pittsburgh, PA
- Nov 2015 “Enabling Variability-Aware Software Tools”, IBM Programming Languages Day, Yorktown Heights, NY
- Jun 2012 “Parsing All of C by Taming the Preprocessor”, Programming Language Design and Implementation (PLDI), Beijing, China
- May 2006 “GraphicML: A Markup Language for Describing Charts”, John W. Tukey Seminar on Data Preparation and Presentation, ETS, Princeton, NJ

Software Artifacts

Krepair Advisee Necip Yildiran and I developed a tool¹ to automatically repair a Linux configuration file so that it covers the changes made in a given patch.

SugarC We developed a transformation² from unpreprocessed C to pure C using SuperC to enable static analysis of all configurations, i.e., family-based analysis of software product lines (ICSE 2022).

Kismet Advisee Necip Yildiran developed a verification-based static analysis¹ for automatically identifying unmet dependency bugs in Linux Kconfig specifications (ESEC/FSE 2021). This tool has been included in the Intel 0-day kernel test robot and sends automated reports to the Linux kernel mailing list (May 2022).

Kconfig Case Studies We developed case studies³ of systems software that use the Kconfig and Kbuild configuration and build management tools. This includes thousands of validated configuration samples; tools to run Kmax, Kclause, and various bug-finders on them; a variability-bug finding simulation framework; and resulting data (ESEC/FSE 2019, TR 2019, TR 2018).

Klocalizer We designed and built a tool¹ to report all configurations leading to a given C file in software using Kconfig/Kbuild.

Kclause We designed and built a tool¹ to compile Kconfig specifications into the DIMACS format and to Z3 expressions (ESEC/FSE 2021).

¹<https://github.com/paulgazz/kmax>

²<https://github.com/appleseedlab/superc>

³https://github.com/paulgazz/kconfig_case_studies

Kmax I designed and built a static analyzer¹ for Kbuild Makefiles that collects symbolic configurations from the Linux build system (NYU TR 2015, ESEC/FSE 2017).

Concurrent smart contracts We created a prototype implementation with benchmarks (PODC 2017).

Proust A boosting library implemented on top of ScalaSTM. I made minor contributions to the library, but built the smart contract implementation for PODC '17 on top of it.

Blazer We created and implemented static analyses for finding complexity and side-channel attacks (PLDI 2017).

RAO I built a prototype implementation of the transactional universal construction for Reversible Atomic Objects (Yale TR 2016).

Courgette I contributed to Google Chrome's unique compression algorithm⁴ for enabling smaller software updates (Google Internship 2013).

SuperC I designed and built a framework² for configuration-preserving preprocessing and parsing with an implementation for C (PLDI 2012).

GraphicML I designed an intermediate language for data graphics and built a translation tool to generate charts as vector graphics (ETS 2000-2008).

NAEP Questions Tool I was the lead developer and version 2 architect (ETS 2000-2008).

Service and Outreach

Reviewing Activities for Journals

2023 Journal Reviewer, Automated Software Engineering, An International Journal (JASE)

2023 Journal Reviewer, Empirical Software Engineering (EMSE)

2022 Journal Reviewer, Transactions on Software Engineering (TSE)

2021 Journal Reviewer, Journal of Parallel and Distributed Computing

2020 Journal Reviewer, Empirical Software Engineering

2019 Journal Reviewer, Science of Computer Programming

2019 Journal Reviewer, Transactions on Mobile Computing (TMC)

2017 Journal Reviewer, Science of Computer Programming

2016 Journal Reviewer, ACM Transactions on Parallel Computing (TOPC)

Reviewing Activities for Funding Agencies

2023 Panelist, National Science Foundation (NSF)

2023 Panelist, National Science Foundation (NSF)

2021 Panelist, National Science Foundation (NSF)

2020 Panelist, National Science Foundation (NSF)

2019 Panelist, National Science Foundation (NSF)

2017 Proposal Reviewer, Netherlands Organisation for Scientific Research (NWO)

Reviewing Activities for Conferences and Workshops

Program Committees

⁴<https://chromium.googlesource.com/chromium/src/courgette/+/master/description.md>

- MODEVAR 2024 Program Committee, Workshop on Languages for Modelling Variability
- VaMoS 2024 Program Committee, International Working Conference on Variability Modelling of Software-Intensive Systems
- ASE 2023 NIER Program Committee, IEEE/ACM Automated Software Engineering (ASE), New Ideas and Emerging Results
- VariVolution 2023 Program Committee, Workshop on Variability and Evolution of Software-Intensive Systems
- SecDev 2023 Program Committee, IEEE Secure Development Conference
- PLDI 2023 Program Committee, Programming Language Design and Implementation
- VaMoS 2023 Program Committee, International Working Conference on Variability Modelling of Software-Intensive Systems
- ICSE-TB 2022 Program Committee, International Conference on Software Engineering, Technical Briefings Track
- MODEVAR 2022 Program Committee, Workshop on Languages for Modelling Variability
- VariVolution 2022 Program Committee, Workshop on Variability and Evolution of Software-Intensive Systems
- ISSRE 2022 Program Committee, International Symposium on Software Reliability Engineering
- MODEVAR 2021 Program Committee, Workshop on Languages for Modelling Variability
- VariVolution 2021 Program Committee, Workshop on Variability and Evolution of Software-Intensive Systems
- PLDI 2021 Program Committee, Programming Language Design and Implementation
- MODEVAR 2020 Program Committee, Workshop on Languages for Modelling Variability
- MODEVAR 2019 Program Committee, Workshop on Languages for Modelling Variability
- SPLC-CC 2018 Program Committee, Systems and Software Product Line Conference, Challenge Track

Extended Review Committees

- OOPSLA 2023 Extended Review Committee/Artifact Evaluation Committee, Object-Oriented Programming, Systems, Languages & Applications

Artifact Evaluation Committees

- OOPSLA 2023 Extended Review Committee/Artifact Evaluation Committee, Object-Oriented Programming, Systems, Languages & Applications
- OOPSLA 2018 Artifact Evaluation Committee, Object-Oriented Programming, Systems, Languages & Applications
- POPL 2018 Artifact Evaluation Committee, Principles of Programming Languages

Organizing Activities for Conferences

- SEED 2021 Virtual Platform Chair, IEEE International Symposium on Secure and Private Execution Environment Design
- CCS 2020 Virtual Conference Task Force Chair, ACM Computer and Communications Security

Campus Service

- 2023-Now Cyber Security and Privacy Cluster Student Activities Chair, University of Central Florida
- 2021-Now Cyber Security and Privacy Cluster Liason to the Hack@UCF Club, University of Central Florida
- 2019-Now Committee Member, Cyber Innovation Lab Committee, University of Central Florida
- 2022-2023 Committee Co-Chair, Cyber Security and Privacy Faculty Research Cluster Hiring Committee, University of Central Florida
- 2022 Committee Member, Computer Science Department Chair Search Committee, University of Central Florida
- 2021 Committee Member, Computer Science Department Hiring Committee, University of Central Florida
- 2021-2022 Committee Member, Cyber Security and Privacy Research Cluster Hiring Committee, University of Central Florida
- 2020-2021 Mentor, NSF CAREER Mentoring Program, University of Central Florida
- 2019-2020 Committee Member, Cyber Security and Privacy Research Cluster Hiring Committee, University of Central Florida
- 2019-2020 Technical Advisor, Hack@UCF, University of Central Florida
- 2018-2020 Organizer, APPLeSEEd Lab Undergraduate Research Interest Meetings, University of Central Florida
- 2019 Faculty Representative, National Merit Scholar Reception, University of Central Florida

Community Outreach

- 2023-Now Coordinator, Camp Connect, University of Central Florida
- 2022 Faculty Mentor, Computing Alliance of Hispanic-Serving Institutions (CAHSI) Research Experience for Undergraduates (REU)
- 2021 Guest Speaker, Summer Camp (by Arup Guha), University of Central Florida
- 2021 Co-Coordinator (with Charlie Hughes), Camp Connect, University of Central Florida
- 2019 “What Is Inside My Computer?” with students Julian Braha, Kai Garcia, Jacob Thomas, and Connor Westcott, STEM Day, University of Central Florida
- 2019 Burnett Honors College Research Match Day, University of Central Florida
- 2019 Coordinator for the Computer Science Department, STEM Day, University of Central Florida
- 2019 Computer Science Sessions, Camp Connect II, University of Central Florida
- 2019 Computer Science Sessions, Camp Connect I, University of Central Florida

Service As a Student

- 2017 Panel Member, MSCS & MSIS Alumni Q&A Panel, New York University
- 2015 Panel Member, MSCS & MSIS Alumni Q&A Panel, New York University
- 2013 PhD Student Representative, Computer Science Department, New York University
- 2009-2012 Teacher, cSplash one-day festival of Math and CS, New York University

- 2009-2010 Volunteer, Women in Computing's High School Girls' CS/Engineering Colloquium
- 2010 President, NYU Master's Association of Computer Science
- 2009 Treasurer, NYU Master's Association of Computer Science
- 2009 Department Representative, NYU Graduate School Open House

Professional Memberships

- 2022-Now IEEE Computer Society Member
- 2009-Now Association for Computing Machinery Professional Member