

# Mehdi Tarrit Mirakhorli, Ph.D.

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## Table of Contents

1. Professional and Administrative Appointments.....	2
2. Education .....	3
3. Research & Development (R&D) Grants.....	3
4. Awards.....	5
5. Publications.....	6
6. Service to the Profession: Leadership Roles .....	14
7. Service to the Profession: Program Committees .....	15
8. Service to the Profession: Federal & State Agencies .....	17
9. Service Activities within the University.....	17
10. Selected Talks / Speeches .....	17
11. Research Advisees .....	18
12. Teaching Experience and Curriculum Design .....	19
13. Professional Memberships.....	20

# 1. Professional and Administrative Appointments

<b>Associate Professor</b>	2023-Present
<b>Director of Software Assurance Laboratory</b> Information and Computer Sciences University of Hawaii at Manoa	
<b>Program Manager (CTR)</b> (In Support of President Biden's Executive Order on Cybersecurity) Cybersecurity and Infrastructure Security Agency (CISA) U.S. Department of Homeland Security (DHS)	Sept 2022 – Dec 2023
<b>Director of Research</b> ESL Global Cybersecurity Institute (GCI) Rochester Institute of Technology	2022-2023
<b>Associate Professor of Software Engineering</b> Software Engineering & Global Cybersecurity Institute Rochester Institute of Technology	2020-2023
<b>Pro Bono Advisor for Social Impact Ventures</b> Knowledge Impact Network	2019-Present
<b>Endowed Kodak Chair of Software Engineering</b> Rochester Institute of Technology	2019-2023
<b>Founding Director</b> Software Design and Productivity Laboratory Rochester Institute of Technology	2014-Present
<b>Assistant Professor of Software Engineering</b> Software Engineering & Data Science Department Director of Software Design and Productivity Laboratory Rochester Institute of Technology	2014-2019
<b>Faculty Fellow</b> Air Force Research Laboratory (AFRL), Rome, NY	May 2017-August 2017
<b>Visiting Scientist</b> Software Engineering Institute and Carnegie Mellon University 4500 Fifth Ave, Pittsburgh, PA 15213	June-August 2014
<b>Researcher</b> U.S. Department of Homeland Security (DHS) Contractor: DePaul University, Chicago, IL, U.S.A Project: Security Architecture Protection Layer	2013-2014
<b>Research Assistant</b> Software and Requirements Engineering Center (SAREC) School of Computing, DePaul University Chicago, IL, U.S.A Advisor: Prof. Jane Cleland-Huang	2009-2013
<b>Advisory Board Member, Consultant</b> Various Industries	2014-Present
<b>Adjunct Teaching Faculty</b> Department of Computer Engineering Iran University of Science and Technology (IUST), Behshahr, Iran	2007- 2009

## 2. Education

<b>Ph.D., Computer Science</b> , DePaul University, Chicago, IL, U.S.A	2009/2014
<b>M.S., Software Engineering</b> , National University (Shahid Beheshti), Tehran, Iran	2006-2008
<b>B.S., Software Engineering</b> , Teacher Training University of Tehran, Iran	2002-2006

## 3. Research & Development (R&D) Grants

**G21. Transportation Cybersecurity Center for Advanced Research and Education (CYBER-CARE)**

*Enhancing Cybersecurity in Transportation Systems: Software Considerations and Public Perceptions of Risk and Security.*

Investigator: Roger Chen (PI), Mehdi Mirakhorli, Anthony Peruma (Co-PI)

Amount: \$139K

Duration: 2024-2025

**G20. Cybersecurity and Infrastructure Security Agency (CISA)**

*National Vulnerability Intelligence Platform (NVIP)*

Investigator: Mehdi Mirakhorli (Sole PI)

Amount: \$4,840,000

Duration: 2022-2023

**G19. U.S. Department of Homeland Security (DHS)**

*Hierarchical Software Quality Assurance*

Investigators: Clemente Izurieta (Lead PI at Prime Montana State University), Mehdi Mirakhorli (PI at RIT)

Amount: \$4,000,000

Duration: 2022-2025

**G18. CAREER, National Science Foundation (NSF)**

*CAREER: Synthesizing Architectural Tactics*

Investigator: Mehdi Mirakhorli (Sole PI)

Amount: \$403,725

Duration: 2020-2025

**G17. National Institutes of Health (NIH), National Institute on Drug Abuse (NIDA)**

*A Randomized Controlled Trial of a Digital, Self-Guided, Avatar Assisted - Cognitive Behavioral Therapy Platform to Treat Addiction: Digital RITchCBT vs. Standard CBT*

Investigators: Caroline Easton (PI), Linwei Wang (Co-PI), Mehdi Mirakhorli (Co-PI)

Amount: \$4,700,000

Duration: 2022-2025

**G16. National Science Foundation (NSF)**

*Collaborative Research: EAGER: Towards a Design Methodology for Software-Driven Sustainability and Sustainable Disposal*

Investigators: Mehdi Mirakhorli (PI at RIT), Eunsuk Kang (CMU), Pooyan Jamshidi (SC)

Amount: \$300,000, CMU/USC, RIT's share \$100K.

Duration: 2022-2024

**G15. U.S. Air Force**

*CRUISE: Cyber Vulnerability Assessments of System Requirements Specifications (SyRS)*

Investigator: Mehdi Mirakhorli (Sole PI)

- Amount: \$700,000  
Duration: 2019-2021
- G14. Defense Advanced Research Projects Agency (DARPA)**  
*An Architecture-Centric Verification and Reasoning Approach For Resilient Systems*  
Investigator: Mehdi Mirakhorli (Sole PI)  
Amount: \$619,034  
Duration: 2019-2022
- G13. U.S. Department of Homeland Security (DHS)**  
*National Vulnerability Intelligence Platform (NVIP)*  
Investigator: Mehdi Mirakhorli (Sole PI)  
Amount: \$ 440,294  
Duration: 2019-2021
- G12. National Science Foundation (NSF)**  
*CRI: CI-NEW: Collaborative Research: Constructing a Community-Wide Software Architecture Infrastructure*  
Sole PI at RIT; Sam Malek (PI at UCI), Joshua Garcia (Co-PI at UCI), Nenad Medvidovic (Lead PI at USC), Rick Kazman (PI at UH), Yuanfang Cai (PI at Drexel), and Lu Xiao (PI at Stevens)  
Amount: \$1.7M, RIT's share: \$374,238  
Duration: 2018-2021
- G11. National Science Foundation (NSF)**  
*SaTC: CORE: Small: Characterizing Architectural Vulnerabilities*  
Investigator: Mehdi Mirakhorli (Sole PI)  
Amount: \$439,135  
Duration: 2018-2021
- G10. National Science Foundation (NSF)**  
*REU Site: Cultivating Next Generation Software Engineering Researchers*  
Investigators: Mehdi Mirakhorli (PI), Mohamed Wiem Mkaouer (co-PI)  
Amount: \$360,000  
Duration: 2017-2020
- G9. U.S. Department of Homeland Security (DHS)**  
*An Automated Framework for Characterizing Vulnerabilities*  
Investigator: Mehdi Mirakhorli (Sole PI)  
Amount: \$160,000  
Duration: 2016-2018
- G8. U.S. Department of Homeland Security (DHS)**  
*Common Architecture Weakness Enumerations*  
Investigator: Mehdi Mirakhorli (Sole PI)  
Amount: Phase II: \$43,050, Phase I: \$24,833, Total: \$67,883  
Duration: 2016-2017
- G7. National Science Foundation (NSF)**  
*CRI:CCF: Planning and Prototyping a Future Instrument for Software Architecture Community (CI-P)*  
Investigator: Mehdi Mirakhorli (Sole PI)  
Amount: \$30,000  
Duration: 2016-2018

- G6. National Science Foundation (NSF)**  
*SHF: Bringing Design Thinking into Developers' Coding Activities through an Architectural Tactic Recommender System*  
 Investigator: Mehdi Mirakhorli (Sole PI)  
 Amount: \$80,000  
 Duration: 2015-2017
- G5. U.S. Department of Homeland Security (DHS)**  
*Archie: Security Architecture Protection Layer*  
 Investigators: Jane Cleland Huang (PI), Mehdi Mirakhorli (Co-PI)  
 Amount: \$30,000  
 Duration: First six months of 2014
- G4. Eaton Corporation**  
*Security Risk Assessment of Vendors Providing Chipsets for Cybersecurity Root of Trust*  
 Investigator: Mehdi Mirakhorli (Sole PI)  
 Amount: \$24,630  
 Duration: 2021-2022.
- G3. Open Technology Funds Corporation**  
*Red-Team Information Security Services for Open-source Internet Freedom Software*  
 Investigators: Justin Pelletier (PI), Mehdi Mirakhorli (Co-PI)  
 Amount: Indefinite Delivery, Indefinite Quantity (IDIQ) contract  
 Duration: 2021-2022
- G2. RIT**  
*SMARTSec: a Holistic Framework to Preserve Security Architectures*  
 Investigator: Mehdi Mirakhorli (Sole PI)  
 Amount: \$14,800  
 Duration 2014-2015
- G1. RIT, Cyber Security Research Center, RIT competitive grants for establishing research centers.**  
 Investigators: Matthew Wright, Mehdi Mirakhorli  
 Amount: \$2,100,000  
 Duration 2016-2023

## 4. Awards

- **ACM Distinguished Speaker, 2022**
- **National Science Foundation (NSF) CAREER Award, 2020.**
- **Best Paper Award**, for "Understanding Software Vulnerabilities Related to Architectural Security Tactics: An Empirical Investigation of Chromium, PHP and Thunderbird", IEEE International Conference on Software Architecture (ICSA) 2017.
- **ACM SIGSOFT Distinguished Paper Award**, for "A Tactic-Centric Approach for Automating Traceability of Quality Concerns", IEEE International Conference on Software Engineering (ICSE), 2012.

- **ACM SIGSOFT Distinguished Paper Award**, "On-demand Feature Recommendations derived from Mining Public Product Descriptions", IEEE International Conference on Software Engineering (ICSE), 2011.
- **GCCIS Outstanding Scholar Award. (2019)**. This college-wide award for excellence in research and scholarship is awarded to a faculty member in the B. Thomas Golisano College of Computing and Information Sciences (GCCIS).
- **Featured Faculty in RIT's Faculty Scholarship Report. (2018)**. Selected by the dean of the Golisano College of Computing and Information Sciences as the faculty member to be featured in the 2018 RIT annual report of scholarship; this annual report lists the publications, research presentations, and research grants of all RIT faculty.
- **PI Millionaires**, designation given to RIT researchers who have achieved funding of \$1 million or more since 2000.
- **Named as Most Active Early Stage Software Engineering Researchers**, in Journal of Software and Systems study of Top Scholars and Institutes in Software Engineering, 2018.

## 5. Publications

- [P1] Joanna C. S. Santos, Mehdi Mirakhorli, and Ali Shokri. 2024. Seneca: Taint-Based Call Graph Construction for Java Object Deserialization. Proc. ACM Program. Lang. 8, OOPSLA, Article 134 (April 2024), 29 pages. <https://doi.org/10.1145/3649851> (OOPSLA)
- [P2] Mohamad Fazelnia, Viktoria Koscinski, Spencer Herzog and Mehdi Mirakhorli, "Exploring the Effectiveness of Large Language Models in Requirement Engineering", 32nd IEEE International Requirements Engineering 2024 conference (**RE'24**).
- [P3] Hamid Bagheri, Mehdi Mirakhorli, Mohamad Fazelnia, Ibrahim Mujhid, and Md Rashedul Hasan. 2024. Neuro-Symbolic Approach to Certified Scientific Software Synthesis. In Proceedings of the 1st ACM International Conference on AI-Powered Software (**AIware 2024**). Association for Computing Machinery, New York, NY, USA, 147–150. <https://doi.org/10.1145/3664646.3664776>
- [P4] Mohamad Fazelnia, Mehdi Mirakhorli, Hamid Bagheri, "Translation Titans, Reasoning Challenges: Satisfiability-Aided Language Models for Detecting Conflicting Requirements", The New Ideas and Emerging Results (NIER) Track, 39th IEEE/ACM International Conference on Automated Software Engineering (**ASE 2024**).
- [P5] Viktoria Koscinski and Mehdi Mirakhorli, "Formally Modeled Common Weakness Enumerations (CWEs)", 6th International Workshop on Automated and verifiable Software sYstem Development (**ASYDE**), 39th IEEE/ACM International Conference on Automated Software Engineering (ASE 2024).
- [P6] Joanna Santos, Mehdi Mirakhorli, Ali Shokri, Sound Call Graph Construction for Java Object Deserialization, <https://arxiv.org/pdf/2311.00943.pdf>
- [P7] Joshua Garcia, Mehdi Mirakhorli, Lu Xiao, Sam Malek, Rick Kazman, Yuanfang Cai, Nenad Medvidovic, "SAIN: A Community-Wide Software Architecture INfrastructure," 2023 IEEE/ACM 45th International Conference on Software Engineering: Companion Proceedings (**ICSE-Companion**), Melbourne, Australia, 2023, pp. 336-337, doi: 10.1109/ICSE-Companion58688.2023.00095.

- [P8] Mehdi Mirakhorli, Schuyler Dillon, Kevin Laporte, Matthew Morrison, Henry Lu, Derek Garcia, Matthew London, Viktoria Koscinski, Christopher Enoch, “A Landscape Study of Open Source and Proprietary Tools for Software Bill of Materials (SBOM)”, **CISA Technical Report**.
- [P9] Viktoria Koscinski, Sara Hashemi, Mehdi Mirakhorli, On-Demand Security Requirements Synthesis with Relational Generative Adversarial Networks (RelGAN), IEEE International Conference on Software Engineering (**ICSE 2023**).
- [P10] Mohamad Fazelnia, Ahmet Okutan, Mehdi Mirakhorli, Supporting AI/ML Security Workers through an Adversarial Techniques, Tools, and Common Knowledge (AI/ML ATT&CK) Framework, IEEE Security & Privacy (**S&P 2022**), To Appear. DOI: 10.1109/MSEC.2022.3221058.
- [P11] Sara Moshtari, Ahmet Okutan, Mehdi Mirakhorli, A Grounded Theory Based Approach to Characterize Software Attack Surfaces, IEEE International Conference on Software Engineering (**ICSE 2022**).
- [P12] Ahmet Okutan, Peter Mell, Mehdi Mirakhorli, Igor Khokhlov, Joanna CS Santos, Danielle Gonzalez, Steven Simmons, Empirical Validation of Automated Vulnerability Curation and Characterization, in IEEE Transactions on Software Engineering (**TSE**), vol. 49, no. 5, pp. 3241-3260, 1 May 2023, doi: 10.1109/TSE.2023.3250479
- [P13] Davide Taibi, Yuanfang Cai, Ingo Weber, Mehdi Mirakhorli, Michael W. Godfrey, John T. Stough & Patrizio Pelliccione , Continuous Alignment Between Software Architecture Design and Development in CI/CD Pipelines, book chapter in Software Architecture Research Roadmaps from the Community, Patrizio Pelliccione, Rick Kazman, Ingo Weber, Anna Liu (eds), Springer, October 2023.
- [P14] Ahmet Okutan, Ali Shokri, Viktoria Koscinski, Mohamad Fazelnia, Mehdi Mirakhorli, A Novel Approach to Identify Security Controls in Source Code. <https://arxiv.org/abs/2307.05605>
- [P15] Joanna Cecilia da Silva Santos, Xueling Zhang, Mehdi Mirakhorli, Counterfeit-Object Oriented Programming Vulnerabilities: An Empirical Study in Java, International Workshop on Mining Software Repositories Applications for Privacy and Security (**MSR4P&S@ESEC/FSE**), 2022.
- [P16] Joanna Cecilia da Silva Santos, Selma Suloglu, Nestor Catano and Mehdi Mirakhorli, A Methodological Approach to Verify Architecture Resiliency, 2nd International Workshop on Designing and Measuring Security in Software Architectures (**DeMeSSA**) co-located with ECSA 2022.
- [P17] Ahmet Okutan, Mehdi Mirakhorli, Predicting the Severity and Exploitability of Vulnerability Reports using Convolutional Neural Nets, 2022 IEEE/ACM 3rd International Workshop on Engineering and Cybersecurity of Critical Systems (**EnCyCris 2022**).
- [P18] Igor Khokhlov, Ahmet Okutan, Ryan Bryla, Steven Simmons and Mehdi Mirakhorli, Automated Extraction of Software Names from Vulnerability Reports using LSTM and Expert System, 29th Annual IEEE Software Technology Conference (**STC 2022**).
- [P19] Mohamad Fazelnia, Igor Khokhlov, Mehdi Mirakhorli: Attacks, Defenses, And Tools: A Framework To Facilitate Robust AI/ML Systems. RobustML Workshop (**ICLR 2021**).
- [P20] Danielle Gonzalez, Paola Peralta Perez, and Mehdi Mirakhorli, Barriers to Shift-Left Security: The Unique Pain Points of Writing Automated Tests Involving Security Controls. In Proceedings of the 15th ACM / IEEE International Symposium on Empirical Software Engineering and Measurement (**ESEM '21**). Association for Computing Machinery, New York, NY, USA, Article 11, 1–12.

- [P21] Viktoria Koscinski, Celeste Gambardella, Estey Gerstner, Mark Zappavigna, Jennifer Cassetti, Mehdi Mirakhorli, A Natural Language Processing Technique for Formalization of Systems Requirement Specifications, 2021 IEEE 29th International Requirements Engineering Conference Workshops (**REW 2021**)
- [P22] Ali Shokri, Joanna Cecilia da Silva Santos and Mehdi Mirakhorli, ArCode: Facilitating the Use of Application Frameworks to Implement Tactics and Patterns, IEEE International Conference on Software Architecture (**ICSA 2021**).
- [P23] Joshua Garcia, Mehdi Mirakhorli, Lu Xiao, Yutong Zhao, Ibrahim Mujhid, Khoi Pham, Ahmet Okutan, Sam Malek, Rick Kazman, Yuanfang Cai and Nenad Medvidovic, Constructing a Shared Infrastructure for Software Architecture Analysis and Maintenance, IEEE International Conference on Software Architecture (**ICSA 2021**).
- [P24] Ali Shokri, Mehdi Mirakhorli, “Arcode: A tool for supporting comprehension and implementation of architectural concerns”, 2021 IEEE/ACM 29th International Conference on Program Comprehension (**ICPC**), <https://arxiv.org/pdf/2103.06735>
- [P25] Joanna C. S. Santos, Reese A. Jones, Chinomso Ashiogwu, and Mehdi Mirakhorli. 2021. “Serialization-aware call graph construction”. In Proceedings of the 10th ACM SIGPLAN International Workshop on the State Of the Art in Program Analysis (**SOAP 2021**). Association for Computing Machinery, New York, NY, USA, 37–42. <https://doi.org/10.1145/3460946.3464319>
- [P26] Ali Shokri, Mehdi Mirakhorli, “Depres: A tool for resolving fully qualified names and their dependencies”, <https://arxiv.org/pdf/2108.01165>
- [P27] Devjeet Roy, Ziyi Zhang, Maggie Ma, Venera Arnaoudova, Annibale Panichella, Sebastiano Panichella, Danielle Gonzalez, Mehdi Mirakhorli, DeepTC-Enhancer: Improving the Readability of Automatically Generated Tests, The 35th IEEE/ACM International Conference on Automated Software Engineering (**ASE 2020**).
- [P28] Joanna CS Santos, Ali Shokri, Mehdi Mirakhorli, “Towards automated evidence generation for rapid and continuous software certification”, 2020 IEEE International Symposium on Software Reliability Engineering Workshops (**ISSREW**), 287-294, 2020, <https://s2e-lab.github.io/preprints/issrew20-preprint.pdf>
- [P29] Jan Keim, Angelika Kaplan, Anne Kozirolek and Mehdi Mirakhorli, Does BERT understand code? - An exploratory study on the detection of architectural tactics in code, In 14th European Conference on Software Architecture (**ECSA 2020**).
- [P30] Jan Keim, Angelika Kaplan, Anne Kozirolek, Mehdi Mirakhorli, “Using BERT for the detection of architectural tactics in code”, KIT Karlsruher Institut für Technologie, Fakultät für Informatik, 2020.
- [P31] S. Moshtari, J. C. S. Santos, M. Mirakhorli and A. Okutan, "Looking for Software Defects? First Find the Nonconformists," 2020 IEEE 20th International Working Conference on Source Code Analysis and Manipulation (**SCAM 2020**), Adelaide, Australia, 2020, pp. 75-86, doi: 10.1109/SCAM51674.2020.00014.
- [P32] Joanna CS Santos, Reese A Jones, Mehdi Mirakhorli, “Salsa: static analysis of serialization features”, Proceedings of the 22nd ACM SIGPLAN International Workshop on Formal Techniques for Java-Like Programs, 2020.
- [P33] Joanna Santos, Selma Suloglu, Joanna Ye, Mehdi Mirakhorli, Towards an Automated Approach for Detecting Architectural Weaknesses in Critical Systems, The 1st International Workshop on Engineering and Cybersecurity of Critical Systems (**EnCyCris 2020**), 2020.



- [P34] Joanna Santos, Sara Moshtari and Mehdi Mirakhorli, An Automated Approach to Recover the Use-case View of an Architecture, 2020 IEEE International Conference on Software Architecture Companion (**ICSA 2020**), Salvador, Brazil, 2020, pp. 63-66, doi: 10.1109/ICSA-C50368.2020.00020.
- [P35] Mehdi Mirakhorli, Matthias Galster, and Laurie Williams. 2020. “Understanding Software Security from Design to Deployment”. SIGSOFT Softw. Eng. Notes 45, 2 (April 2020), 25–26. <https://doi.org/10.1145/3385678.3385687>
- [P36] Joanna Cecilia da Silva Santos, Reese Jones and Mehdi Mirakhorli, Static Analysis of Serialization Features, Formal Techniques for Java-like Programs, 22nd Workshop on Formal Techniques for Java-like Programs (**FTfJP 2020**).
- [P37] Danielle Gonzalez, Michael Rath, Mehdi Mirakhorli, “Did You Remember To Test Your Tokens?” , The International Conference on Mining Software Repositories (**MSR’20**), 2020.
- [P38] Joanna Cecilia Da Silva Santos, Adriana Sejfia, Taylor Corrello, Smruthi Gadenkanahalli and Mehdi Mirakhorli, Achilles’ Heel of Plug-and-Play Software Architectures, 27th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (**ESEC/FSE’19**), 2019.
- [P39] Danielle Gonzalez, Holly Hastings, Mehdi Mirakhorli, “Automated Characterization of Software Vulnerabilities”, 2019 IEEE International Conference on Software Maintenance and Evolution (**ICSME’19**), short paper, 2019.
- [P40] Danielle Gonzalez, Fawaz Alhenaki and Mehdi Mirakhorli, Architectural Security Weaknesses in Industrial Control Systems (ICS): An Empirical Study based on Disclosed Software Vulnerabilities, IEEE International Conference on Software Architecture (**ICSA’19**), 2019.
- [P41] Joanna C. S. Santos, Katy Tarrit, Mehdi Mirakhorli, Matthias Galster, and Adriana Sejfia, “Tactical Vulnerabilities: An Empirical Investigation of Chromium, PHP and Thunderbird”, *Journal of Systems and Software – Elsevier*, Impact factor 2.278, 2019.
- [P42] Waleed Zogaan, Ibrahim Mujhid, Joanna C. S. Santos, Danielle Gonzalez, Mehdi Mirakhorli, “Automated Training-Set Creation for Software Architecture Traceability Problem”, *Empirical Software Engineering Journal*. Impact factor 4, 2017.
- [P43] Danielle Gonzalez, Joanna CS Santos, Andrew Popovich, Mehdi Mirakhorli, Mei Nagappan, “A large-scale study on the usage of testing patterns that address maintainability attributes: patterns for ease of modification, diagnoses, and comprehension”, 2017 IEEE/ACM 14th International Conference on Mining Software Repositories (MSR), <https://arxiv.org/pdf/1704.08412.pdf>
- [P44] Ibrahim Mujhid, Joanna C. S. Santos, Raghuram Gopalakrishnan, Mehdi Mirakhorli, “A Search Engine for Finding and Reusing Architecturally Significant Code”, *Journal of Systems and Software – Elsevier*, 2016.
- [P45] Mehdi Mirakhorli, Jane Cleland-Huang, “Tracing and Visualizing Architectural Tactics in Code”, *IEEE Transaction on Software Engineering (TSE)*, 2016.
- [P46] Negar Hariri, Carlos Castro-Herrera, Mehdi Mirakhorli, Jane Cleland-Huang, Bamshad Mobasher, “Supporting Domain Analysis through Mining and Recommending Features from Online Product Listings”, *IEEE Transaction on Software Engineering (TSE)*, 2013, vol. 99, no. PrePrints, p.1, DOI: <http://doi.ieeecomputersociety.org/10.1109/TSE.2013.39>.
- [P47] Mehdi Mirakhorli, Jane Cleland-Huang, “Traversing the Twin Peaks”, *IEEE Software*, vol.30, no.2, pp.30-36, March-April 2013, DOI: 10.1109/MS.2013.40.

- [P48] Jane Cleland Huang, Adam Czauderna, Mehdi Mirakhorli, “Driving Architectural Design and Preservation from a Persona Perspective in Agile Projects”, *Agile Software Architecture*, edited by Muhammad Ali Babar, Ivan Mistrik, and Alan Brown, 2014.
- [P49] Mehdi Mirakhorli and Jane Cleland-Huang. "Tracing Non-Functional Requirements", In: Andrea Zisman, Jane Cleland-Huang and Olly Gotel. *Software and Systems Traceability*, Springer-Verlag, 2012.
- [P50] Inayat Rehman, Mehdi Mirakhorli, Meiyappan Nagappan, Azat Aralbay Uulu, and Matthew Thornton. 2018. Roles and impacts of hands-on software architects in five industrial case studies. In Proceedings of the 40th International Conference on Software Engineering (**ICSE '18**). Association for Computing Machinery, New York, NY, USA, 117–127. <https://doi.org/10.1145/3180155.3180234>
- [P51] Matthias Galster, Danny Weyns, Antony Tang, Rick Kazman and Mehdi Mirakhorli, From Craft to Science: The Road Ahead for Empirical Software Engineering Research, International Conference on Software Engineering (**ICSE**), **NIER track**, 2018.
- [P52] Yuzhan Ma, Venera Arnaoudova, Mehdi Mirakhorli, Sarah Fakhoury, Mike Christensen and Waleed Zogaan, Automatic Classification of Software Artifacts in Open-Source Applications, The International Conference on Mining Software Repositories (**MSR'18**), 2018
- [P53] Raghuram Gopalakrishnan, Palak Sharma, Mehdi Mirakhorli and Matthias Galster, “Can Latent Topics in Source Code Predict Missing Architectural Tactics?”, 39th International Conference on Software Engineering (**ICSE'17**), Buenos Aires, Argentina, 2017.
- [P54] Joanna C. S. Santos, Mehdi Mirakhorli, Anthony Peruma, Jairo Veloz Vidal, and Matthias Galster, Adriana Sejfia, “Understanding Software Vulnerabilities Related to Architectural Security Tactics: An Empirical Investigation of Chromium, PHP and Thunderbird”, The International Conference on Software Architecture (**ICSA'17**) (**Best Paper Award**).
- [P55] Joanna C. S. Santos, Katy Tarrit, Mehdi Mirakhorli, "A Catalog of Security Architecture Weaknesses", In 2017 IEEE International Conference on Software Architecture (**ICSA'17**), 2017.
- [P56] Waleed Zogaan, Palak Sharma, Mehdi Mirakhorli and Venera Arnaoudova, Datasets from Fifteen Years of Automated Software Traceability Research (Current State, Characteristics and Quality). 25th IEEE International Requirements Engineering Conference (**RE'17**), 2017.
- [P57] Hector Valdecantos, Mehdi Mirakhorli, Katy Tarrit, James O. Coplien, “An empirical study on code comprehension: Data Context Interaction compared to classical Object Oriented” 25th International Conference on Program Comprehension (**ICPC'17**), 2017.
- [P58] Danielle Gonzalez, Joanna C.S. Santos, Andrew Popovich, Mehdi Mirakhorli and Mei Nagappan, “An Empirical Study of Unit Test Quality Attributes in Open Source Projects”, The 14th International Conference on Mining Software Repositories (**MSR'17**), 2017.
- [P59] Joanna C. S. Santos, Mehdi Mirakhorli, Ibrahim Mujhid and Waleed Zogaan, “BUDGET: a Tool for Supporting Software Architecture Traceability Research”, 13th Working IEEE/IFIP Conference on Software Architecture (**WICSA'16**), Tool Demonstration, 2016.
- [P60] Daniel Krutz, Mehdi Mirakhorli, “Architectural Clones: Toward Tactical Code Reuse”, Symposium on Applied Computing, 2016.
- [P61] Saeed Namdar, Mehdi Mirakhorli, "Toward Actionable Software Architecture Traceability", The 8th International Symposium on Software and Systems Traceability (**SST'15**), 2015.

- [P62] Ehsan Kouroshfar, Mehdi Mirakhorli, Hamid Bagheri, Lu Xiao, Sam Malek, and Yuanfang Cai, "A Study on the Role of Software Architecture in the Evolution and Quality of Software", The 12th Working Conference on Mining Software Repositories (**MSR'15**), 2015.
- [P63] Daniel E. Krutz, Mehdi Mirakhorli, Samuel A. Malachowsky, Andres Ruiz, Jacob Peterson, and Andrew Filipinski, "A Dataset of Open Source Android Applications", The 12th Working Conference on Mining Software Repositories (**MSR'15**), 2015.
- [P64] Mehdi Mirakhorli, Jane Cleland-Huang, "Modifications, Tweaks, and Bug Fixes in Architectural Tactics", The 12th Working Conference on Mining Software Repositories (**MSR'15**), 2015.
- [P65] Mehdi Mirakhorli, "Software Architecture Reconstruction: Why? What? How?", 2015 IEEE 22nd International Conference on Software Analysis, Evolution, and Reengineering (**SANER'15**), 2015
- [P66] Meiyappan Nagappan, Mehdi Mirakhorli: Big(ger) Data in Software Engineering. ICSE (2) 2015: 957-958.
- [P67] Matthias Galster, Mehdi Mirakhorli, M. Galster and M. Mirakhorli, "5th International Workshop on the Twin Peaks of Requirements and Architecture (TwinPeaks 2015)," *2015 IEEE/ACM 37th IEEE International Conference on Software Engineering*, Florence, Italy, 2015, pp. 1017-1018, doi: 10.1109/ICSE.2015.330.
- [P68] Robert S. Hanmer , Mehdi Mirakhorli, "Mining New Patterns by Learning from the Trenches", Pattern Languages of Programs (PLoP'14), 2014.
- [P69] Matthias Galster, Mehdi Mirakhorli, Jane Cleland-Huang, Xavier Franch, Janet E. Burge, Roshanak Roshandel, and Paris Avgeriou. 2014. Towards bridging the twin peaks of requirements and architecture. *SIGSOFT Softw. Eng. Notes* 39, 5 (September 2014), 30–31. <https://doi.org/10.1145/2659118.2659139>
- [P70] Mehdi Mirakhorli, Ahmed Fakhry, Artem Grechko, Mateusz Wieloch, Jane Cleland-Huang "Archie: A Tool for Detecting, Monitoring, and Preserving Architecturally Significant Code", 22nd ACM SIGSOFT International Symposium on the Foundations of Software Engineering (**FSE'14**), 2014.
- [P71] Mona Rahimi, Mehdi Mirakhorli, Jane Cleland-Huang, "Automated Extraction and Visualization of Quality Concerns from Requirements Specifications", 22<sup>nd</sup> IEEE International Requirements Engineering Conference (**RE'14**), 2014, IEEE Computer Society.
- [P72] Mehdi Mirakhorli, Yonghee Shin, Jane Cleland-Huang and Murat Cinar, "A Tactic-Centric Approach for Automating Traceability of Quality Concerns", 34th International Conference on Software Engineering (**ICSE'12**), 2012 , pp.639-649, DOI: 10.1109/ICSE.2012.6227153, **ACM SIGSOFT Distinguished Paper Award**, (Acceptance rate: 14%).
- [P73] Mehdi Mirakhorli, Patrick Maeder, Jane Cleland-Huang, "Variability Points and Design Pattern Usage in Architectural Tactics", 20th ACM SIGSOFT Symposium on the Foundations of Software Engineering (**FSE'12**), SIGSOFT/FSE'12, 2012, DOI=10.1145/2393596.2393657 (Acceptance rate: 17.4%).
- [P74] Jane Cleland-Huang, Patrick Maeder, Mehdi Mirakhorli, Sorawit Amornborvornwong, "Breaking the Big-Bang Practice of Traceability: Pushing Timely Trace Recommendations to Project Stakeholders", 20th IEEE International Requirements Engineering Conference (**RE'12**), 2012, IEEE Computer Society, pp.231-240, DOI: 10.1109/RE.2012.6345809, (Acceptance rate: 24%).
- [P75] Mehdi Mirakhorli, "Preventing Erosion of Architectural Tactics through Their Strategic Implementation, Preservation, and Visualization", 28th IEEE/ACM International Conference on Automated Software Engineering (**ASE'13**), 2013, pp.762-765.

- [P76] Matthias Galster, Mehdi Mirakhorli, Jane Cleland-Huang, Janet E. Burge, Xavier Franch, Roshanak Roshandel, Paris Avgeriou: Views on software engineering from the twin peaks of requirements and architecture. *ACM SIGSOFT Software Engineering Notes* 38(5): 40-42 (2013).
- [P77] Horatiu Dumitru, Marek Gibiec, Negar Hariri, Jane Cleland-Huang, Bamshad Mobasher, Carlos Castro-Herrera, Mehdi Mirakhorli, "On-demand Feature Recommendations derived from Mining Public Product Descriptions", *IEEE International Conference on Software Engineering (ICSE'11)*, 2001, pp.81-190, DOI=10.1145/1985793.1985819, **ACM SIGSOFT Distinguished Paper Award**, (Acceptance rate: 14%).
- [P78] Mehdi Mirakhorli, Cleland-Huang, "Using Tactic Traceability Information Models to Reduce the Risk of Architectural Degradation during System Maintenance", *Proceedings of the 27th International Conference on Software Maintenance (ICSM'11)*, 2011, pp.123-132, DOI: 10.1109/ICSM.2011.6080779, (Acceptance rate: 28%).
- [P79] Mehdi Mirakhorli, Jane Cleland-Huang, "Tracing Architectural Concerns in High Assurance Systems (**NIER Track**)", In *Proceedings of the 33rd International Conference on Software Engineering (ICSE'11)*, 2011, pp. 908-911, DOI=10.1145/1985793.1985942, (Acceptance rate: 22%).
- [P80] Mehdi Mirakhorli, "Tracing Architecturally Significant Requirements: a Decision-Centric Approach", In *Proceedings of the 33rd International Conference on Software Engineering (ICSE '11)*, 2011, pp.1126-1127, DOI=10.1145/1985793.1986014.
- [P81] Mehdi Mirakhorli, Cleland-Huang, "A Pattern System for Tracing Architectural Concerns", In *proceeding of 18th Conference on Pattern Languages of Programs (PLOP'10)*, Portland, OR, USA. 2010.
- [P82] Amir Sharifloo, Mehdi Mirakhorli, Fereidoon Shams, "Agility in Iran: Position, Motivation, and Adaption", In *Proceeding of 20th Australian Conference on Software Engineering (AWEC'09)*, 2009, (Acceptance rate: 30%).
- [P83] Mehdi Mirakhorli, A.R. Khanipoor, Fereidoon Shams, Abbas Mirakhorli, Maryam Pazoki, "RDP Technique: Take a Different Look at XP for Adoption", *19th IEEE Australian Conference on Software Engineering (AWEC'09)*, 2008, pp. 656-662, DOI: 10.1109/ASWEC.2008.4483259, (Acceptance rate: 30%).
- [P84] Mehdi Mirakhorli, Amir Azim Sharifloo, Maghsoud Abbaspour, "A Novel Method for Leader Election Algorithm", *7<sup>th</sup> IEEE International Conference on Computer and Information Technology (CIT'07)*, 2007, pp.452,456, DOI: 10.1109/CIT.2007.86.
- [P85] Amir Sharifloo, Mehdi Mirakhorli, Mostafa Esmaceli, Abolfazl T. Haghghat, "A Leader Election Algorithm for Clustered Group", *IEEE International Conference on Industrial and Information System (ICIIS2007)*, 2007, DOI: 10.1109/ICIINFS.2007.4579138.
- [P86] Mehran Mozafari Kermani, Mehdi Mirakhorli, "Multidisciplinary Approaches and Challenges in Integrating Emerging Medical Devices Security Research and Education", *ASEE Conferences: American Society for Engineering Education (ASEE)*, 2016.
- [P87] Scott Hawker, Robert Kuehl, Mehdi Mirakhorli, Merged Software Requirements and Architecture Course, *ASEE Conferences: American Society for Engineering Education (ASEE)*, 2016.
- [P88] Jane Cleland Huang, Muhammad Ali Babar, Mehdi Mirakhorli, "An Inverted Classroom Experience: Engaging Students in Architectural Thinking for Agile Projects", *Software Engineering Education and Training (SEET) Track*, *36th International Conference on Software Engineering (ICSE)*, 2014.

- [P89] Joanna Cecilia Da Silva Santos, Selma Suloglu, Joanna Ye, Mehdi Mirakhorli, "Towards an Automated Approach for Detecting Architectural Weaknesses in Critical Systems" International Workshop on Engineering and Cybersecurity of Critical Systems (**EnCyCris'20**), 2020.
- [P90] Danielle Gonzalez; Suzanne Prentice; Mehdi Mirakhorli, A Fine-Grained Approach for Automated Conversion of JUnit Assertions to English, 1st International Workshop on NLP for Software Engineering, co-located with 2018 ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), 2018.
- [P91] Danielle Gonzalez, Andrew Popovich, Mehdi Mirakhorli, TestEX: A Search Tool for Finding and Retrieving Example Unit Tests from Open Source Projects, 2016 IEEE 27th International Symposium on Software Reliability Engineering Workshops (ISSREW 2016).
- [P92] J. Cleland-Huang, M. Rahimi and M. Mirakhorli, "Ready-Set-Transfer! Technology transfer in the requirements engineering domain," 2015 IEEE 23rd International Requirements Engineering Conference (RE), Ottawa, ON, 2015, pp. 412-413. doi: 10.1109/RE.2015.7320461
- [P93] Matthias Galster, Mehdi Mirakhorli, and Nenad Medvidovic. 2017. Bringing Architecture Thinking into Developers' Daily Activities. SIGSOFT Softw. Eng. Notes 41, 6 (January 2017), 24-26. DOI: <https://doi.org/10.1145/3011286.3011290>.
- [P94] Mehdi Mirakhorli, Hongmei Chen and Rick Kazman. "Mining Big Data for Detecting, Extracting and Recommending Architectural Design Concepts", 1st International Workshop on BIG Data Software Engineering, 2015.
- [P95] Catherine Ramirez, Meiyappan Nagappan, and Mehdi Mirakhorli, "Studying the Impact of Evolution in R Libraries on Software Engineering Research", 1st International Workshop on Software Analytics, 2015 IEEE 22nd International Conference on Software Analysis, Evolution, and Reengineering (SANER), 2015.
- [P96] Mehdi Mirakhorli, "Software architecture reconstruction: Why? What? How?," *2015 IEEE 22nd International Conference on Software Analysis, Evolution, and Reengineering (SANER)*, Montreal, QC, Canada, 2015, pp. 595-595, doi: 10.1109/SANER.2015.7081885.
- [P97] Matthias Galster, Mehdi Mirakhorli, Anne Koziolk: Twin Peaks goes Agile. ACM SIGSOFT Software Engineering Notes 40(5): 47-49 (2015).
- [P98] Mehdi Mirakhorli, Julia Carvalho, Jane Cleland-Huang, Patrick Maeder, "A Domain-Centric Approach for Recommending Architectural Tactics to Satisfy Quality Concerns", *3rd International Workshop on the Twin Peaks of Requirements and Architecture (TwinPeaks)*, 21st IEEE International Requirements Engineering Conference (RE'13), 2013, pp.1-8, DOI: 10.1109/TwinPeaks-2.2013.6617352.
- [P99] Jane Cleland-Huang, Mehdi Mirakhorli, Adam Czauderna, Mateusz Wieloch, "Decision-Centric Traceability of Architectural Concerns", The 7th International Workshop on Traceability in Emerging Forms of Software Engineering (TEFSE), Co-located with IEEE International Conference on Software Engineering (ICSE) 2013, pp.5-11, DOI: 10.1109/TEFSE.2013.6620147.
- [P100] J. Cleland-Huang, R. S. Hanmer, S. Supakkul and M. Mirakhorli, "The Twin Peaks of Requirements and Architecture," in *IEEE Software*, vol. 30, no. 2, pp. 24-29, March-April 2013.
- [P101] Mehdi Mirakhorli, Jane Cleland-Huang, "Transforming Trace Information in Architectural Documents into Re-Usable and Effective Traceability Links", in *Proceedings of the Sixth Workshop on SHaring and Reusing architectural Knowledge*, 33rd International Conference on Software Engineering (ICSE'11), 2011, pp.908-911, DOI=10.1145/1988676.1988685.

- [P102] Mehdi Mirakhorli, Jane Cleland-Huang, “A Decision-Centric Approach for Tracing Reliability Concerns in Embedded Software Systems”, In *Proceeding of Embedded Software Reliability (ESR)*, held at ISSRE’10, San Jose, Nov, 2010.
- [P103] Mehdi Mirakhorli, Abdorrahman Khanipour Rad, Fereidoon Shams, Maryam Pazoki, and Abbas Mirakhorli, “RDP Technique: a Practice to Customize XP”, In *Proceedings of the 2008 international workshop on Scrutinizing agile practices or shoot-out at the agile corral (APOS '08)*, 30th International Conference on Software Engineering (ICSE’08), 2008, pp. 23-32. DOI=10.1145/1370143.1370149.
- [P104] Mehdi Mirakhorli, Amir Azim Sharifloo, and Fereidoon Shams, “Architectural Challenges of Ultra Large Scale Systems”, In *Proceedings of the 2nd international workshop on Ultra-large-scale software-intensive systems (ULSSIS '08)*, 30th International Conference on Software Engineering (ICSE’08), 2008, pp.45-48. DOI=10.1145/1370700.1370713.
- [P105] Amir Azim Sharifloo, Mehdi Mirakhorli, and Fereidoon Shams, “How could ULS Systems Achieve Architecture Benefits?”, In *Proceedings of the 2nd international workshop on Ultra-large-scale software-intensive systems (ULSSIS '08)*, 30th International Conference on Software Engineering (ICSE’08), 2008, pp.41-44. DOI=10.1145/1370700.1370712.
- [P106] Fereidoon Shams, Amir Azim Sharifloo, Mehdi Mirakhorli, and Mostafa Emaeli, “A Service Driven Development Process (SDDP) Model for Ultra Large Scale Systems”, In *Proceedings of the 2nd international workshop on Ultra-large-scale software-intensive systems (ULSSIS'08)*, 30th International Conference on Software Engineering (ICSE’08), 2008, pp.37-40. DOI=10.1145/1370700.1370711.
- [P107] Gastón Márquez, Mehdi Mirakhorli, Hernán Astudillo, “Reverse Engineering Microservices-based Software Architectures” Technical Report.

### **Software Tools**

All my open source software can be found at: <https://github.com/SoftwareDesignLab>

### **Dissertations**

- [P108] PhD Dissertation: “Preventing Erosion of Architectural Tactics through their Strategic Implementation, Preservation, and Visualization”.
- [P109] M.S. Dissertation: “Reliability Prediction of Software Product Line Architecture”.
- [P110] M.S. Seminar, "Architectural Challenges of Ultra-Large-Scale (ULS) Systems".
- [P111] B.Sc. Dissertation: “Performance Optimization in Building Ultra Large Data Warehouses”.

## **6. Service to the Profession: Leadership Roles**

- S1. Associate Editor for *IEEE Transaction on Software Engineering (TSE)*
- S2. Associate Editor, *Empirical Software Engineering Journal (EMSE)*
- S3. Editorial Board for *Journal of Software and System (JSS)*
- S4. Associate Editor for *IEEE Software Blog on Software Architecture and Requirements*.
- S5. Guest Editor, *IEEE Special Issue on TwinPeaks of Requirements and Architecture*
- S6. Program Co-Chair: *Technical Briefings and Tutorials, IEEE International Conference on Software Architecture (ICSA), 2024*
- S7. Program Chair: *3rd International Workshop on Software Security from Design to Deployment*.

- S8. *Publicity Chair: International Working Conference on Requirements Engineering: Foundation for Software Quality, 2019.*
- S9. *Program Chair: International Workshop on Software Security from Design to Deployment, Co-located with ASE 2019.*
- S10. *Program Co-Chair: The Second International Workshop on Establishing a Community-Wide Infrastructure for Architecture-Based Software Engineering, Co-located with ICSE 2019.*
- S11. *Data Track Chair: International Requirements Engineering Conference (RE), 2017.*
- S12. *Program Chair: International Workshop on Software Security from Design to Deployment, Co-located with ICSE 2018.*
- S13. *Program Co-Chair: The First International Workshop on Establishing a Community-Wide Infrastructure for Architecture-Based Software Engineering, Co-located with ICSE 2017.*
- S14. *Workshops Chair, FSE 2016: ACM SIGSOFT International Symposium on the Foundations of Software Engineering.*
- S15. *General Chair, First International Workshop on Bringing Architecture Design Thinking into Developers' Daily Activities (Bridge'16), 2016.*
- S16. *Program Committee Chair, 5th International Workshop on Twin Peaks of Requirements and Architecture, IEEE International Conference on Software Engineering (ICSE), 2015.*
- S17. *Program Chair: Technical Briefing on Big(ger) Data in Software Engineering, IEEE International Conference on Software Engineering (ICSE), 2015.*
- S18. *Speaker, Software Architecture Reconstruction: Why? What? and How?, 22nd International Conference on Software Analysis, Evolution and Reengineering (SANER), 2015.*
- S19. *Co-Organizer, Focused Group on Mining New Patterns, Pattern Languages of Programs (PLoP), 2014.*
- S20. *Program Chair: 4th International Workshop on Twin Peaks of Requirements and Architecture, IEEE International Conference on Software Engineering (ICSE), 2014.*
- S21. *Program Board Member: 3rd International Workshop on Twin Peaks of Requirements and Architecture, 21st IEEE International Requirements Engineering Conference (RE), 2013.*
- S22. *Program Board Member: 2nd International Workshop on Twin Peaks of Requirements and Architecture IEEE International Conference on Software Engineering (ICSE), 2013.*
- S23. *Program Chair: 1st International Workshop on Twin Peaks of Requirements and Architecture, 20st IEEE International Requirements Engineering Conference (RE'12), 2012.*
- S24. *Student Volunteer Chair, 20th IEEE International Requirements Engineering Conference, September 24th-28th, 2012.*

## **7. Service to the Profession: Program Committees**

- S25. *IEEE International Conference on Software Engineering (ICSE 2020).*
- S26. *ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE 2020).*
- S27. *IEEE International Conference on Automated Software Engineering (ASE 2020).*
- S28. *IEEE International Conference on Requirements Engineering (RE 2020).*
- S29. *The International Conference on Mining Software Repositories (MSR 2020).*
- S30. *IEEE European Conference on Software Architecture (ECSA 2020).*
- S31. *IEEE International Conference on Software Architectures (ICSA 2020).*

- S32. *IEEE International Conference on Software Maintenance and Evolution (ICSME 2020).*
- S33. *IEEE International Conference on Software Architectures (ICSA), Early Career Researchers Forum (ECRF) (ICSA-ECRF 2020).*
- S34. *IEEE International Conference on Software Architectures (ICSA 2019).*
- S35. *Tool Demonstrations, ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE 2019).*
- S36. *European Conference on Software Architecture (ECSA 2019).*
- S37. *IEEE International Conference on Automated Software Engineering (ASE 2018).*
- S38. *IEEE International Conference on Software Architectures (ICSA 2018).*
- S39. *Tool Demonstration Track at the International Conference on Software Engineering (ICSE 2018).*
- S40. *IEEE International Conference on Software Maintenance and Evolution (ICSME 2018).*
- S41. *IEEE International Conference on Requirements Engineering (RE 2018).*
- S42. *International Symposium on Software Testing and Analysis (ISSTA) 2018 Demonstrations Track, 2018.*
- S43. *European Conference on Software Architecture (ECSA 2018).*
- S44. *IEEE International Conference on Software Architectures (ICSA 2017).*
- S45. *23rd International Working Conference on Requirements Engineering: Foundation for Software Quality, 2017.*
- S46. *Tool Demonstration Track at the International Conference on Software Engineering (ICSE 2016).*
- S47. *Tool Demonstration Track at 31st IEEE/ACM International Conference on Automated Software Engineering (ASE 2016).*
- S48. *Eighth International Workshop on Managing Technical Debt, 2016.*
- S49. *Software Engineering Education Track at the International Conference on Software Engineering (ICSE 2016).*
- S50. *2nd International Workshop on BIG Data Software Engineering, ICSE 2016.*
- S51. *8th International Symposium on Software and Systems Traceability (SST' 2015).*
- S52. *22nd International Conference on Software Analysis, Evolution and Reengineering (SANER 2015).*
- S53. *Early Research Achievements (ERA) track of the 30th International Conference on Software Maintenance and Evolution (ICSME 2015).*
- S54. *RE2015-Posters-Tool-Demos, International Requirements Engineering Conference (RE), 2015.*
- S55. *1st International Workshop on BIG Data Software Engineering, IEEE International Conference on Software Engineering (ICSE), 2015.*
- S56. *Early Research Achievements (ERA) track of the 30th International Conference on Software Maintenance and Evolution (ICSME 2014).*
- S57. *Pattern Shepherd, Pattern Languages of Programs Conference (PLoP'13), October 23-26, 2013.*
- S58. *7th International Workshop on Traceability in Emerging Forms of Software Engineering. Collocated with IEEE International Conference on Software Engineering (ICSE'13), 2013.*
- S59. *Requirements Engineering for Systems, Services, and Systems of Systems (RES<sup>4</sup>) at 19th IEEE International Requirements Engineering Conference (RE'10), 2010.*



## 8. Service to the Profession: Federal & State Agencies

- S60. *NCERC Expert, Several occasions*
- S61. *R&D Evaluator for European Institutes, Several occasions*
- S62. *R&D Evaluator for U.S. Institutes/Staates, Several occasions*
- S63. *Evaluator, SME for National Science Foundation (NSF), U.S. Department of Homeland Security (DHS), U.S. Department of Defense (DoD), several occasions*

## 9. Service Activities within the University

- S64. *Hiring Committee Chair, ICS, University of Hawaii at Manoa, 2023, 2024*
- S65. *Dean's Hiring Committee, Thomas Golisano College of Computing and Information Sciences (GCCIS). 2022*
- S66. *Hiring Committee Chair, Software Engineering Department.*
- S67. *Establishing DFARS Compliance Facility at Software Design and Productivity Laboratory.*
- S68. *New Funding Model for PhD Program, Ad-hoc Committee, Rochester Institute of Technology, 2019.*
- S69. *Hiring Committee, Director of Research Computing*
- S70. *PhD Curriculum Committee, Rochester Institute of Technology, 2017, 2018.*
- S71. *Graduate Curriculum Committee, Software Engineering Department Rochester Institute of Technology, 2017, 2018, 2019, 2020.*
- S72. *Tenure-Track Hiring Committee Member, Rochester Institute of Technology, 2017.*
- S73. *Tenure-Track Hiring Committee Member, Rochester Institute of Technology, 2016.*
- S74. *Tenure-Track Hiring Committee Member, Rochester Institute of Technology, 2015.*
- S75. *Graduate Admission Committee Member, Rochester Institute of Technology, 2014-2016.*
- S76. *ABET Accreditation Committee, Software Engineering Department, Rochester Institute of Technology, 2015.*
- S77. *Lecturer Hiring Committee Member, Rochester Institute of Technology, 2015.*
- S78. *Reviewer for College-Wide Seed Grants, Rochester Institute of Technology, 2014.*
- S79. *CO-OP Advisor, Rochester Institute of Technology, 2014-Present.*
- S80. *Open Houses, Rochester Institute of Technology, 2014-Present.*

## 10. Selected Talks / Speeches

- **Speaker**, Hack the Capitol, Washington D.C. 2024
- **Invited Speaker**, “Is It Time to Shift from Cybersecurity to Cyber Resilience?”, Université Bretagne Sud, ENSIBS / IRISA, France, 2024
- **Distinguished Guest Speaker**, “Secure by Design”, Center for Cyber Security/AI Research University of North Dakota, 2024
- **Annual Dr. N.H. Paul Chung Memorial Lecture**: What will Artificial Intelligence Mean for Hawaii? Opportunities for Growth, Dangers of Disinformation, and Challenges for the Workplace, ThinkTech Hawaii.

- **Keynote speaker:** “Secure by Design, and Default”, DeMeSSA 2023 : The 3rd International Workshop on Designing and Measuring Security in Software Architectures.
- **Keynote speaker:** “Tool Sharing, Composition, and Reproducible Research through Software Architecture INstrument (SAIN)”, 2nd International Workshop on Mining Software Repositories for Software Architecture, 2022.
- Lecturer series, University of Notre Dame, “Secure by Design, What it means, what it takes?”, 2020.
- **Keynote speaker** at RePa 2017, “Deus ex machina: Reinventing by machine learning”, 2017.
- *US Food and Drug Administration (FDA)*, “Proactive Approach to Software Security, Privacy and Safety”, October 2016.
- *Software Engineering Institute (SEI) Architecture Technology User Network (SATURN) Conference*, “Identifying and Protecting Architecturally Significant Code”, May 2014.
- **ALTA Distinguished Speaker**, Alcatel-Lucent, “Software Archeology: Mining Software Repositories to Discover Design Knowledge”, August 15, 2013.
- *Research Experiences for Undergraduates (REU)*, DePaul University, “Software Engineering Research”, Summer 2013.

## 11. Research Advisees

### Full-Time Research Staff:

- Dr. Selma Suloglu
- Dr. Igor Khokhlov
- Dr. Nestor Catano
- Dr. Ahmet Okutan
- Dr. Sara Moshtari
- Estey Gerstner
- Ibrahim Mujhid
- Chris Enoch
- Matthew Moon
- Tyler Drake
- Ping Liu

### Current Ph.D. Students

- Derek Garcia (2024-Present), AI & Cybersecurity
- Mohamad Fazelnia (2020-Present), AI & Cybersecurity
- Viktoria Koscinski (2020-Present), Software Security

### Former Ph.D. Students

- Sarah Moshtari, Postdoctoral Researcher, University of Hawaii, 2023.
- Ali Shokri, Postdoctoral Researcher, Virginia Tech, 2023.
- Joanna Cecilia Santos, 2021, Assistant Professor, **University of Notre Dame**, U.S. News Ranke 20.
- Danielle Gonzalez, 2021, **Recipient of Microsoft Research Fellowship, Security Researcher at Microsoft.**
- Waleed Zogaan, 2019, Assistant Professor, Jazan University

### Visiting Ph.D. Students

- Gaston Marquez, (2018-Present), Federico Santa Maria Technical University, Chile

- Keim, Jan, (2019-Present), Karlsruhe Institute of Technology (KIT), Germany
- Andréa Cristina de Souza Doreste (2019-Present), Universidade Federal do Rio de Janeiro, Brazil
- Michael Rath (2019-Present), Technische Universität Ilmenau, Germany

#### **Committee Member**

- Harold Valdivia Garcia, Ph.D., RIT, 2016
- Bushra Aloraini, Ph.D., RIT, 2017
- Eman Abdullah Alomar, RIT, 2019
- Hussein Al-Rubaye, Ph.D., RIT, 2020
- Katja Tuma, Gothenburg University, Sweden, 2021

#### **Master and Undergraduate Research Advisees (Bold font: Women in Computing)**

- |                                 |                                |                                   |
|---------------------------------|--------------------------------|-----------------------------------|
| <b>1. Adriana Sejfia</b>        | <b>31. Juliette Raubolt</b>    | 61. Raghuram Gopalakrishnan       |
| <b>2. Samantha Reed</b>         | 32. Fawaz Alhenaki             | 62. Rahul Kumar Shinde            |
| 3. Ali Shokri                   | <b>33. Joanna Ye</b>           | 63. Rebaz Saber Sale              |
| 4. Amol Pantvaidya              | 34. Hitesh Ulhas Vaidya        | 64. Ronak Shettigar               |
| 5. Andrew Popovich              | 35. Reese Jones                | <b>65. Shreya Ramesh Kothari</b>  |
| 6. Anthony Peruma               | <b>36. Celeste Gambardella</b> | <b>66. Smruthi Gadenkanahalli</b> |
| 7. Austin Sierra                | <b>37. Paola Peralta Perez</b> | 67. Steven Simmon                 |
| 8. Azat Aralbay Uulu            | 38. Pavan Chappidi             | <b>68. Suzanne Prentice</b>       |
| 9. Carlos Gabriel               | 39. Brandon Greet              | 69. Talal Alsarrani               |
| 10. Cesar Perez                 | 40. Peter Mastropaolo          | <b>70. Taylor Corrello</b>        |
| 11. Chinmay Singh               | 41. Garcia-Dubus Mejia         | <b>71. Tegan Ayers</b>            |
| <b>12. Danielle Gonzalez</b>    | <b>42. Giovana PucciniÁa</b>   | <b>72. Tejal Vishnoi</b>          |
| 13. Nasir Ahmad Safdari         | 43. Hector Valdecantos         | 73. Umang Garg                    |
| 14. Omar Dajani                 | <b>44. Heena Farhat Surve</b>  | 74. Waleed Zogaan                 |
| <b>15. Palak Sharma</b>         | <b>45. Holly Hastings</b>      | <b>75. Wendy Hsia</b>             |
| 16. Palash Sanjay Jain          | 46. Ibrahim Mujhid             | 76. Adonias Landa                 |
| 17. Pratham Mehta               | 47. Inayat Rehman              | 77. Jake Imanaka                  |
| 18. Pritesh Bora                | 48. Jairo Pavel Veloz Vidal    |                                   |
| 19. Priyank Kapadia             | 49. Jeffrey Miller             |                                   |
| 20. Chinmay Singh               | <b>50. Joanna Santos</b>       |                                   |
| 21. Ryan Bryla                  | <b>51. Jodie Miu</b>           |                                   |
| <b>22. Jasmin Gomez Heredia</b> | 52. Joe Tom Job                |                                   |
| <b>23. Emily Lederman</b>       | 53. John Rivera                |                                   |
| <b>24. Nomso Ashiogwu</b>       | <b>54. Ishika Prasad</b>       |                                   |
| 25. Schuyler Dillon             | 55. Harrison Klein             |                                   |
| 26. Derek Garcia                | <b>56. Mugdha Sudhakar</b>     |                                   |
| 27. Jared Ebenstein             | 57. Andrew Pickard             |                                   |
| <b>28. Kelly Trainor</b>        | 58. Matthew Thornton           |                                   |
| 29. Michael Pacheco             | 59. Viral Parmar               |                                   |
| <b>30. Manya Kaur Gulati</b>    | <b>60. David Rickards</b>      |                                   |

## **12. Teaching Experience and Curriculum Design**

### **Curricular Development at University of Hawaii:**

- Advanced Software Engineering, Fall 2023.
- Capstones, Spring 2024

**Curricular Development at Rochester Institute of Technology:**

- Software Modeling (RIT), Fall 2014.
- Software Requirements and Architecture, Fall 2014, Spring 2016, Spring 2017, Spring 2018.
- Software Architecture and Product line, Fall 2015, Fall 2016, Fall 2017, Fall 2018.
- Software Architecture, Fall 2019, Fall 2020.
- Independent Studies, Spring 2015, Fall 2016, Spring 2017, Fall 2017, Spring 2018, Fall 2018.
- Software Engineering for Startups, Spring 2019

**As Lecturer at Iran University of Science and Technology (Behshahr Campus):**

- Software Engineering Principles, Fall 2008, Fall 2009
- Compiler Construction, Fall 2008, Spring 2009
- Object Oriented Software Development, Fall 2008
- C++ Programming Language, Spring 2008, Spring 2009
- Software Architecture, Spring 2008, Fall 2009
- Advanced Topic in Software Engineering, Spring 2008, Spring 2009

### **13. Professional Memberships**

- Association for Computing Machinery, ACM
- ACM Special Interest Group in Software Engineering (SIGSOFT)
- Institute of Electrical and
- Electronics Engineers (IEEE)