

# Mehdi Mirakhorli

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Endowed Kodak Chair, Associate Professor | Software Engineering & Data Science Department  
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# 1. Professional Appointments

<b>Director of Research</b> ESL Global Cybersecurity Institute (GCI) Rochester Institute of Technology	2022-Present
<b>Associate Professor</b> Software Engineering & Global Cybersecurity Institute Rochester Institute of Technology	2020-Present
<b>Endowed Kodak Chair of Software Engineering</b> Rochester Institute of Technology	2019-Present
<b>Founding Director</b> Software Design and Productivity Laboratory Rochester Institute of Technology	2014-Present
<b>Assistant Professor</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: <i>Prof. Jane Cleland-Huang</i>	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 PhD Advisor: Dr. Jane Cleland-Huang	2009/2014
<b>M.S., Computer Science</b> , National University (Shahid Beheshti), Tehran, Iran	2006-2008
<b>B.S., Computer Science</b> , Teacher Training University of Tehran, Iran	2002-2006

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

- G20. U.S. Department of Homeland Security (DHS)**  
*National Vulnerability Intelligence Platform (NVIP)*  
Investigator: Mehdi Mirakhorli (Sole PI)  
Amount: \$4,840,000  
Duration: 2022-2023
- G19. 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
- G18. 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, RIT's share \$900K  
Duration: 2022-2025
- G17. CAREER, National Science Foundation (NSF)**  
*CAREER: Synthesizing Architectural Tactics*  
Investigator: Mehdi Mirakhorli (Sole PI)  
Amount: \$403,725  
Duration: 2020-2025
- 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 (PI at CMU), Pooyan Jamshidi (PI at SC)  
Amount: \$300,000, CMU/USC, RIT's share \$100K.  
Duration: 2022-2023
- 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. RIT**

*SMARTSec: a Holistic Framework to Preserve Security Architectures*

Investigator: Mehdi Mirakhorli (Sole PI)

Amount: \$14,800

Duration 2014-2015

**G2. RIT, Cyber Security Research Center, RIT competitive grants for establishing research centers.**

Investigators: Matthew Wright, Mehdi Mirakhorli

Amount: \$2,100,000

Duration 2016-2023

**G1. RIT, Center for Cybersecurity, \$45K matching funds**

## 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] Sara Moshtari, Ahmet Okutan, Mehdi Mirakhorli, A Grounded Theory Based Approach to Characterize Software Attack Surfaces, IEEE International Conference on Software Engineering (**ICSE 2022**).
- [P2] 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.
- [P3] 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.
- [P4] 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**).
- [P5] 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).
- [P6] Mohamad Fazelnia, Igor Khokhlov, Mehdi Mirakhorli: Attacks, Defenses, And Tools: A Framework To Facilitate Robust AI/ML Systems. RobustML Workshop (**ICLR 2021**).
- [P7] 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.
- [P8] 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**)
- [P9] 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**).
- [P10] 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**).
- [P11] 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**).
- [P12] 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**).
- [P13] 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.

- [P14] 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.
- [P15] 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.
- [P16] 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**).
- [P17] Danielle Gonzalez, Michael Rath, Mehdi Mirakhorli, “Did You Remember To Test Your Tokens?” , The International Conference on Mining Software Repositories (**MSR’20**), 2020.
- [P18] 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.
- [P19] 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.
- [P20] 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.
- [P21] 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.
- [P22] 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.
- [P23] 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.
- [P24] Mehdi Mirakhorli, Jane Cleland-Huang, “Tracing and Visualizing Architectural Tactics in Code”, *IEEE Transaction on Software Engineering (TSE)*, 2016.
- [P25] 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>.
- [P26] 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.
- [P27] 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.

- [P28] 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.
- [P29] Inayat Rehman, Matthew Thornton, Azad Aralbay Uulu, Mehdi Mirakhorli and Meiyappan Nagappan, "Why Should Architecture-Savvy Developers Write Code?", 40th International Conference on Software Engineering (**ICSE'18**), 2018.
- [P30] 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.
- [P31] 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
- [P32] 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.
- [P33] 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**).
- [P34] 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.
- [P35] 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.
- [P36] 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.
- [P37] 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.
- [P38] 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.
- [P39] Daniel Krutz, Mehdi Mirakhorli, "Architectural Clones: Toward Tactical Code Reuse", Symposium on Applied Computing, 2016.
- [P40] Saeed Namdar, Mehdi Mirakhorli, "Toward Actionable Software Architecture Traceability", The 8th International Symposium on Software and Systems Traceability (**SST'15**), 2015.
- [P41] 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.
- [P42] 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.



- [P43] Mehdi Mirakhorli, Jane Cleland-Huang, "Modifications, Tweaks, and Bug Fixes in Architectural Tactics", The 12th Working Conference on Mining Software Repositories (**MSR'15**), 2015.
- [P44] Mehdi Mirakhorli, "Software Architecture Reconstruction: Why? What? How?", 2015 IEEE 22nd International Conference on Software Analysis, Evolution, and Reengineering (**SANER'15**), 2015
- [P45] Meiyappan Nagappan, Mehdi Mirakhorli: Big(ger) Data in Software Engineering. **ICSE** (2) 2015: 957-958.
- [P46] Robert S. Hanmer , Mehdi Mirakhorli, "Mining New Patterns by Learning from the Trenches", Pattern Languages of Programs (**PLoP'14**), 2014.
- [P47] 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.
- [P48] 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.
- [P49] 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%).
- [P50] 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%).
- [P51] 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%).
- [P52] 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.
- [P53] 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).
- [P54] 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**), 2011, pp.81-190, DOI=10.1145/1985793.1985819, **ACM SIGSOFT Distinguished Paper Award**, (Acceptance rate: 14%).
- [P55] 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%).
- [P56] 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%).
- [P57] 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.
  - [P58] 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.
  - [P59] 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%).
  - [P60] 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%).
  - [P61] 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.
  - [P62] Amir Sharifloo, Mehdi Mirakhorli, Mostafa Esmaili, Abolfazl T. Haghighat, "A Leader Election Algorithm for Clustered Group", IEEE International Conference on Industrial and Information System (**ICIIS2007**), 2007, DOI: 10.1109/ICIINFS.2007.4579138.
  - [P63] 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.
  - [P64] Scott Hawker, Robert Kuehl, Mehdi Mirakhorli, Merged Software Requirements and Architecture Course, ASEE Conferences: American Society for Engineering Education (ASEE), 2016.
  - [P65] 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.
  - [P66] Joanna Cecilia da Silva Santos, Sara Moshtari and Mehdi Mirakhorli, “An Automated Approach to Recover the Use-case View of an Architecture”, IEEE International Conference on Software Architecture (**ICSA'20**), 2020.
  - [P67] 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.
  - [P68] 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.
  - [P69] 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).

- [P70] 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
- [P71] 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>.
- [P72] 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.
- [P73] 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.
- [P74] Matthias Galster, Mehdi Mirakhorli, Anne Koziolk: Twin Peaks goes Agile. ACM SIGSOFT Software Engineering Notes 40(5): 47-49 (2015).
- [P75] 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.
- [P76] 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.
- [P77] 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.
- [P78] 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.
- [P79] 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.
- [P80] 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.
- [P81] 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.
- [P82] 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.

- [P83] 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.
- [P84] Gastón Márquez, Mehdi Mirakhorli, Hernán Astudillo, "Reverse Engineering Microservices-based Software Architectures"
- [P85] Danielle Gonzalez, Palash Jain, Joanna Cecilia Da Silva Santos and Mehdi Mirakhorli, "Unit Test Recommendations for Authentication".
- [P86] Waleed Zogaan, Mehdi Mirakhorli, Venera Arnaoudova, "A Dataset Quality Assessment Framework", *Empirical Software Engineering Journal (EMSE)*.
- [P87] Ali Shokri, Joanna Cecilia Da Silva Santos, Chinmay Singh, Ishika Prasad and Mehdi Mirakhorli, "SpecMiner: An Approach for Inferring the Specification of Architectural Frameworks".
- [P88] Héctor Adrián Valdecantos and Mehdi Mirakhorli, Paradigm Characterization through Reading Patterns: Data Context Interaction Compared to Classical Object-Oriented

### **Software Tools**

- [P89] <https://github.com/ArchieProject/Archie-Smart-IDE>

Archie is a Smart-IDE to detect and monitor architectural decisions during developers coding activities.

- [P90] <http://design.se.rit.edu/budget>

BUDGET is a Big-data Augmented Dataset Generation technique, designed to support empirical research in the area of software engineering and in particular software traceability.

- [P91] <http://design.se.rit.edu/TestEx>

TestEx is a test-case search engine which indexes millions of test-cases in open source software repositories, enabling the developers effectively search for sample test-cases for a given testing problem.

- [P92] [design.se.rit.edu/ArchEngine/](http://design.se.rit.edu/ArchEngine/)

ArchEngine is a search engine that helps developers find sample code snippets implementing architectural decisions known as patterns and tactics. ArchEngine performs better than the state of the art search techniques.

### **Dissertations**

- [P93] PhD Dissertation: "Preventing Erosion of Architectural Tactics through their Strategic Implementation, Preservation, and Visualization".
- [P94] M.S. Dissertation: "Reliability Prediction of Software Product Line Architecture".
- [P95] M.S. Seminar, "Architectural Challenges of Ultra-Large-Scale (ULS) Systems".
- [P96] 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 Chair: 3rd International Workshop on Software Security from Design to Deployment.*
- S7. *Publicity Chair: International Working Conference on Requirements Engineering: Foundation for Software Quality, 2019.*
- S8. *Program Chair: International Workshop on Software Security from Design to Deployment, Co-located with ASE 2019.*
- S9. *Program Co-Chair: The Second International Workshop on Establishing a Community-Wide Infrastructure for Architecture-Based Software Engineering, Co-located with ICSE 2019.*
- S10. *Data Track Chair: International Requirements Engineering Conference (RE), 2017.*
- S11. *Program Chair: International Workshop on Software Security from Design to Deployment, Co-located with ICSE 2018.*
- S12. *Program Co-Chair: The First International Workshop on Establishing a Community-Wide Infrastructure for Architecture-Based Software Engineering, Co-located with ICSE 2017.*
- S13. *Workshops Chair, FSE 2016: ACM SIGSOFT International Symposium on the Foundations of Software Engineering.*
- S14. *General Chair, First International Workshop on Bringing Architecture Design Thinking into Developers' Daily Activities (Bridge'16), 2016.*
- S15. *Program Committee Chair, 5th International Workshop on Twin Peaks of Requirements and Architecture, IEEE International Conference on Software Engineering (ICSE), 2015.*
- S16. *Program Chair: Technical Briefing on Big(ger) Data in Software Engineering, IEEE International Conference on Software Engineering (ICSE), 2015.*
- S17. *Speaker, Software Architecture Reconstruction: Why? What? and How?, 22nd International Conference on Software Analysis, Evolution and Reengineering (SANER), 2015.*
- S18. *Co-Organizer, Focused Group on Mining New Patterns, Pattern Languages of Programs (PLoP), 2014.*
- S19. *Program Chair: 4th International Workshop on Twin Peaks of Requirements and Architecture, IEEE International Conference on Software Engineering (ICSE), 2014.*
- S20. *Program Board Member: 3rd International Workshop on Twin Peaks of Requirements and Architecture, 21st IEEE International Requirements Engineering Conference (RE), 2013.*
- S21. *Program Board Member: 2nd International Workshop on Twin Peaks of Requirements and Architecture IEEE International Conference on Software Engineering (ICSE), 2013.*
- S22. *Program Chair: 1st International Workshop on Twin Peaks of Requirements and Architecture, 20st IEEE International Requirements Engineering Conference (RE'12), 2012.*
- S23. *Student Volunteer Chair, 20th IEEE International Requirements Engineering Conference, September 24th-28th, 2012.*

## 7. Service to the Profession: Program Committees

- S24. *IEEE International Conference on Software Engineering (ICSE 2020).*
- S25. *ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE 2020).*
- S26. *IEEE International Conference on Automated Software Engineering (ASE 2020).*
- S27. *IEEE International Conference on Requirements Engineering (RE 2020).*
- S28. *The International Conference on Mining Software Repositories (MSR 2020).*

- S29. *IEEE European Conference on Software Architecture (ECSA 2020).*
- S30. *IEEE International Conference on Software Architectures (ICSA 2020).*
- S31. *IEEE International Conference on Software Maintenance and Evolution (ICSME 2020).*
- S32. *IEEE International Conference on Software Architectures (ICSA), Early Career Researchers Forum (ECRF) (ICSA-ECRF 2020).*
- S33. *IEEE International Conference on Software Architectures (ICSA 2019).*
- S34. *Tool Demonstrations, ACM SIGSOFT International Symposium on the Foundations of Software Engineering (FSE 2019).*
- S35. *European Conference on Software Architecture (ECSA 2019).*
- S36. *IEEE International Conference on Automated Software Engineering (ASE 2018).*
- S37. *IEEE International Conference on Software Architectures (ICSA 2018).*
- S38. *Tool Demonstration Track at the International Conference on Software Engineering (ICSE 2018).*
- S39. *IEEE International Conference on Software Maintenance and Evolution (ICSME 2018).*
- S40. *IEEE International Conference on Requirements Engineering (RE 2018).*
- S41. *International Symposium on Software Testing and Analysis (ISSTA) 2018 Demonstrations Track, 2018.*
- S42. *European Conference on Software Architecture (ECSA 2018).*
- S43. *IEEE International Conference on Software Architectures (ICSA 2017).*
- S44. *23rd International Working Conference on Requirements Engineering: Foundation for Software Quality, 2017.*
- S45. *Tool Demonstration Track at the International Conference on Software Engineering (ICSE 2016).*
- S46. *Tool Demonstration Track at 31st IEEE/ACM International Conference on Automated Software Engineering (ASE 2016).*
- S47. *Eighth International Workshop on Managing Technical Debt, 2016.*
- S48. *Software Engineering Education Track at the International Conference on Software Engineering (ICSE 2016).*
- S49. *2nd International Workshop on BIG Data Software Engineering, ICSE 2016.*
- S50. *8th International Symposium on Software and Systems Traceability (SST' 2015).*
- S51. *22nd International Conference on Software Analysis, Evolution and Reengineering (SANER 2015).*
- S52. *Early Research Achievements (ERA) track of the 30th International Conference on Software Maintenance and Evolution (ICSME 2015).*
- S53. *RE2015-Posters-Tool-Demos, International Requirements Engineering Conference (RE), 2015.*
- S54. *1st International Workshop on BIG Data Software Engineering, IEEE International Conference on Software Engineering (ICSE), 2015.*
- S55. *Early Research Achievements (ERA) track of the 30th International Conference on Software Maintenance and Evolution (ICSME 2014).*
- S56. *Pattern Shepherd, Pattern Languages of Programs Conference (PLoP'13), October 23-26, 2013.*
- S57. *7th International Workshop on Traceability in Emerging Forms of Software Engineering. Collocated with IEEE International Conference on Software Engineering (ICSE'13), 2013.*
- S58. *Requirements Engineering for Systems, Services, and Systems of Systems (RES^4) at 19th IEEE International Requirements Engineering Conference (RE'10), 2010.*

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

- S59. *NSF Panelist, Several occasions*
- S60. *NCERC Expert, Several occasions*

- S61. *R&D Evaluator for European Agencies, Several occasions*
- S62. *R&D Evaluator for U.S. Institutes/State/U.S. Department of Homeland Security (DHS), U.S. Department of Defense (DoD), several occasions*

## 9. Service Activities within the University

- S63. *Dean's Hiring Committee, Thomas Golisano College of Computing and Information Sciences (GCCIS). 2022*
- S64. *Endowed Professor Hiring Committee, ESL Global Cybersecurity Institute, RIT, 2021, 2022*
- S65. *Hiring Committee Chair, Software Engineering Department.*
- S66. *Establishing DFARS Compliance Facility at Software Design and Productivity Laboratory.*
- S67. *Hiring Committee, Director of Research Computing*
- S68. *PhD Curriculum Committee, Rochester Institute of Technology, 2017, 2018.*
- S69. *Graduate Curriculum Committee, Software Engineering Department Rochester Institute of Technology, 2017, 2018, 2019, 2020.*
- S70. *Tenure-Track Hiring Committee Member, Rochester Institute of Technology, 2017.*
- S71. *Tenure-Track Hiring Committee Member, Rochester Institute of Technology, 2016.*
- S72. *Tenure-Track Hiring Committee Member, Rochester Institute of Technology, 2015.*
- S73. *Graduate Admission Committee Member, Rochester Institute of Technology, 2014-2016.*
- S74. *ABET Accreditation Committee, Software Engineering Department, Rochester Institute of Technology, 2015.*
- S75. *Lecturer Hiring Committee Member, Rochester Institute of Technology, 2015.*
- S76. *Reviewer for College-Wide Seed Grants, Rochester Institute of Technology, 2014.*
- S77. *CO-OP Advisor, Rochester Institute of Technology, 2014-Present.*
- S78. *Open Houses, Rochester Institute of Technology, 2014-Present.*

## 10. Research Advisees

### Full-Time Research Staff:

- Dr. Selma Suloglu
- Dr. Igor Khokhlov
- Dr. Nestor Catano
- Dr. Ahmet Okutan
- Estey Gerstner
- Ibrahim Mujhid

### Current Ph.D. Students

- Mohamad Fazelnia (2020-Present), AI & Cybersecurity
- Viktoria Koscinski (2020-Present), Software Security
- Sarah Moshtari, (2019-Present), Software Security
- Héctor Adrián Valdecantos, (2018-Present), Program Comprehension
- Ali Shokri, (2018-Present), Program Synthesis

### Former Ph.D. Students

- Joanna Cecilia Santos, 2021, Assistant Professor, **University of Notre Dame.**
- Danielle Gonzalez, 2021, **Recipient of Microsoft Research Fellowship, Security Researcher/Engineer at Microsoft.**

- Waleed Zogaan, 2019, Assistant Professor, Jazan University

### **Visiting Ph.D. Students**

- Gaston Marquez, (2018), Federico Santa Maria Technical University, Chile
- Keim, Jan, (2019), Karlsruhe Institute of Technology (KIT), Germany
- Andréa Cristina de Souza Doreste (2019), Universidade Federal do Rio de Janeiro, Brazil
- Michael Rath (2019), Technische Universität Ilmenau, Germany

### **Committee Member**

- Larissa Braz, University of Zurich, Switzerland, 2022
- Katja Tuma, Gothenburg University, Sweden, 2021
- Anthony Peruma, RIT, 2022
- Eman Abdullah Alomar, RIT, 2022
- Hussein Al-Rubaye, Ph.D., RIT, 2020
- Eman Abdullah Alomar, RIT, 2019
- Bushra Aloraini, Ph.D., RIT, 2017
- Harold Valdivia Garcia, Ph.D., RIT, 2016

### **Master and Undergraduate Research Advisees**

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



## 11. Teaching Experience and Curriculum Design

### 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, Fall 2022
- Independent Studies, 2014-Present.

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

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

## 12. Selected Talks

- **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.

## 13. Professional Memberships

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