# Curricum Vitae

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## Summary

I am an Assistant Professor/Lecturer in Software Engineering. My main research lies in the area of software engineering. Specifically, I am interested in helping software developers with their security and privacy tasks. I employ program analysis and machine learning techniques to generate actionable security- related insights for developers.

## Employment

February 2024 – *ongoing*

**University of Edinburgh**
**Assistant Professor/Lecturer**
- Field: Software Engineering
- Member of the Institute for Computing Systems Architecture

August 2018 – December 2023

**University of Southern California**
**Research Assistant**
- Automated cleaning of datasets comprised of patches using program analysis
- Pattern-based vulnerability detection using program analysis and machine learning
- Understanding architectural vulnerabilities

May 2022 – September 2022

**Google**
**Research Intern**
- Static analysis for verifying privacy attributes

May 2021 – August 2021

**GitHub Inc., Office of the CTO (OCTO)**
**Research Intern**
- Analyzed malicious npm packages and devised learning models for their automated detection

January 2017 – May 2018

**Rochester Institute of Technology**
**Research Assistant**
- Researched tracing vulnerabilities across different revisions of a software
- Analyzed vulnerabilities stemming from architectural vs. implementation mistakes

January 2013 – May 2013

**Rochester Institute of Technology in Kosovo**
**Research Assistant**
- Conducted interviews with relevant stakeholders and performed statistical analysis

## Education

August 2018 – November 2023

**University of Southern California**
**Ph.D. in Computer Science**
Advisor: *Nenad Medvidović*

## Education (continued)

August 2016 – May 2018 — Rochester Institute of Technology
**M.Sc. in Software Engineering**
Advisor: *Mehdi Mirakhorli*
*College Delegate*

September 2011 – May 2015 — Rochester Institute of Technology in Kosovo
**B.S. in Information Technology**
*Class Valedictorian*

## Research Publications

### Journal Articles

1. Santos, J. C., Tarrit, K., **Sejfia, A.**, Mirakhorli, M., & Galster, M. (2019). An empirical study of tactical vulnerabilities. *Journal of Systems and Software, 149,* 263–284.

### Conference Proceedings

1. **Sejfia, A.**, Das, S., Shafiq, S., & Medvidović, N. (2024). Toward improved deep learning-based vulnerability detection. In *International Conference on Software Engineering (ICSE).*

2. **Sejfia, A.**, & Schäfer, M. (2022). Practical automated detection of malicious npm packages. In *International Conference on Software Engineering (ICSE).*

3. **Sejfia, A.**, Zhao, Y., & Medvidović, N. (2021). Identifying casualty changes in software patches. In *Proceedings of the 29th ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE)* (pp. 304–315).

4. Zhao, Y., Yin, S., **Sejfia, A.**, Laser, M. S., Wang, H., & Medvidovic, N. (2021). Assessing the feasibility of web-request prediction models on mobile platforms. In *2021 IEEE/ACM 8th International Conference on Mobile Software Engineering and Systems (MobileSoft)* (pp. 12–23). IEEE.

5. **Sejfia, A.**, & Medvidović, N. (2020). Strategies for pattern-based detection of architecturally-relevant software vulnerabilities. In *2020 IEEE International Conference on Software Architecture (ICSA)* (pp. 92–102). IEEE.

6. Zhao, Y., Chen, J., **Sejfia, A.**, Schmitt Laser, M., Zhang, J., Sarro, F., … Medvidovic, N. (2020). Fruiter: A framework for evaluating UI test reuse. In *Proceedings of the 28th ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE)* (pp. 1190–1201).

7. Santos, J. C., **Sejfia, A.**, Corrello, T., Gadenkanahalli, S., & Mirakhorli, M. (2019). Achilles' heel of plug-and-play software architectures: A grounded theory based approach. In *Proceedings of the 2019 27th ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE)* (pp. 671–682).

8. **Sejfia, A.** (2019). A pilot study on architecture and vulnerabilities: Lessons learned. In *2019 IEEE/ACM 2nd International Workshop on Establishing the Community-Wide Infrastructure for Architecture-Based Software Engineering (ECASE)* (pp. 42–47). IEEE.

9. Santos, J. C., Peruma, A., Mirakhorli, M., Galstery, M., Vidal, J. V., & **Sejfia, A.** (2017). Understanding software vulnerabilities related to architectural security tactics: An empirical investigation of chromium, php and thunderbird. In *2017 IEEE International Conference on Software Architecture (ICSA)* (pp. 69–78). IEEE.

## Awards and Achievements

2023    **EECS Rising Star Workshop**, selected as a participant

2022    **USC WISE Travel Grant**, covered conference participation

         **Heidelberg Laureate Forum**, selected as a Young Researcher Participant

2020    **Google PhD Fellowship Recipient**, Software Engineering and Programming Technologies category

         **USC Travel Award**, funds to cover participation at ICSA

         **CRA-WP Grad Cohort for Women**, selected for fully-funded participation

2019    **Grace Hopper Attendance Scholarship by USC**, selected by the CS department

         **USC WISE Travel Grant**, covered conference participation

2018    **Annenberg Fellowship by USC**, a 4-year funding package from USC

2017    **Best Paper Award at ICSA**, awarded to the paper entitled "Understanding software vulnerabilities related to architectural security tactics: An empirical investigation of Chromium, PHP and Thunderbird"

2016    **TLP Scholarship by USAID and Kosovo government**, Fully funded my master's studies in the US

## Skills

Programming and technologies    Java, Python, C/C++, Souffle, R, Bash, jQuery, MacOS, Unix, Windows,

Languages    Albanian (native), English (full proficiency), Spanish (elementary proficiency)

## Invited Talks

2023    **University of Edinburgh**, Toward efficient identification of exploitable code

         **University of Southern California**, Toward efficient identification of exploitable code

2022    **University of Arizona, Scholar Speaker Series**, The usage of patches in automated detection of exploitable code

2021    **GitHub**, Practical automated detection of malicious npm packages

## Professional Service

2024    Artifact reviewer for ICSE

2023    Artifact reviewer for ICSE

         Artifact reviewer for SCORED Workshop

2022    Reviewer for SCORED Workshop

         Artifact reviewer for ICSE

## Leadership and Volunteer Experience

2019 – *ongoing*  🔖 **USC Women and gender minorities in Computing Club (WinCC) Board Member**, help in organizing monthly seminars

2015 – 2016  🔖 **Girls in Coding Kosova Founder and Board Member**, led and obtained funding for projects

2011-2016  🔖 **Karl Popper/British Parliamentary Debate Judge**, served in local (Kosovo) and international competitions

2015-2016  🔖 **Karl Popper Debate Coach**, led the team from Peje

## References

Available on Request