ZE SHI (ZANE) LI

PhD Candidate, Computer Science, University of Victoria

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RESEARCH SUMMARY

My PhD research leverages qualitative and data mining techniques to contribute towards software development practices and tools. I conduct empirical studies, collaborate closely with industry practitioners and mine online repositories to derive actionable insights from online based user feedback. I have had the privilege of working closely and collaboratively with multiple colleagues from my lab as well as researchers from around the world.

EDUCATION

PhD in Computer Science, University of Victoria, GPA: 4.0/4.0   2020 - Present
Research Topic: Practices and Tools to Automate Analysis of Online User Feedback
Supervisors: Dr. Daniela Damian and Dr. Neil Ernst

MSc in Computer Science, University of Victoria, GPA: 4.0/4.0   2018 - 2020
Thesis: Complying with the GDPR in the Context of Continuous Integration
Supervisors: Dr. Daniela Damian and Dr. Neil Ernst

BSc in Computer Science (Minor in Business), University of Victoria, GPA: 3.7/4.0   2014 - 2018

EXPERIENCE

Graduate Research Assistant   Sept 2018 - Present
SEGAL Lab and Octera Lab, University of Victoria

- Leading empirical studies focused on automated analysis of user feedback and product management.
  - Conducted a case study on the current state of practice for how organizations are managing user feedback, particularly from social media, through interview studies (ICSE24).
  - Designed and developed an automated process using large-language models for NLP and Dynamic Topic Modeling, for large-scale, multi-platform analysis of user feedback to identify product relevant trends and themes (ongoing).
  - Led a mixed method, grounded theory based interview and survey study to understand how organizations and practitioners are adopting AI tools (ongoing).
  - Headed and implemented an approach for identifying product relevant user feedback from videos (i.e., TikTok and YouTube) using deep learning NLP models for analyzing the text extracted from audio and visual OCR (RE23).
  - Streamlined a study on understanding human aspects (i.e., privacy, inclusivity, empathy) from product relevant user feedback and developer perspectives (RE22, 2 in-review).
  - Spearheaded a tool to conduct automated detection of GDPR violations in the AWS infrastructure of a partner company (IST22).
- Coordinated and mentored multiple projects related to software ecosystems and AI assistance tools.
  - Designed a study for investigating software ecosystem related problems from user feedback and triangulating the problems with industry perspectives (ICSOB23).
  - Coordinated a mixed methods study exploring developer sentiment and challenges from using AI code assistant tools (ongoing).
  - Formulated research methodology for identifying technical debt in open source scientific computing software (ongoing).

Co-Instructor   Jan 2024 - Present
Requirements Engineering, University of Victoria

- Designed the structure and procedure for a semester-long project.

- Developed and delivered engaging lecture material, tailored to diverse learning styles.

SERVICE

Paper Reviews:	Journal of Software Systems, IEEE Software, and Empirical Software Engineering
Mentorship:	Technical mentor for Inspire UVic
Student Mentoring:	Joao Batista Jr, Bachan Ghimire, Anika Bookout, Manish Sihag, Nowshin Nawar Arony, and Ahmed Musa Awon
Guest Lecture	Research Skills x2, Introduction to Systems Analysis, Data Science, and Generative AI for SE
Teaching Assistant:	Requirements Engineering x3, Design Project II x2, Data Science, Introduction to Systems Analysis, and Software Development Methods

AWARDS

- ICSOB 2023 Best Paper Award

- NSERC Postgraduate Scholarship – Doctoral program

- University of Victoria President's Research Scholarship 2023, 2022

- Mitacs Accelerate Fellowship

- University of Victoria Fellowship

- University of Victoria Graduate Award 2023, 2022, 2021

SKILLS

Research Skills	Grounded Theory, Thematic Analysis, Design Science Research, Case Studies, Ethnographic Research, Survey Research, Data Mining Studies
Languages	Python, JavaScript, Typescript, Java, C++, SQL, GraphQL
Frameworks/Libraries	React, NodeJS, Scikit, Tensorflow, Pandas, Express, Angular
Tools	Docker, Jupyter Notebooks, Google Firebase, MongoDB, AWS, Android Studio, Selenium, VS Code, Google Colab, PostgreSQL

PUBLICATIONS

Conference Publications

1. **Z. S. Li**, N. N. Arony, K. Devathasan, M. Sihag, N. Ernst, and D. Damian, "Unveiling the Life Cycle of User Feedback: Best Practices from Software Practitioners," accepted in 2024 International Conference on Software Engineering (ICSE 2024)

2. B. Ghimire, **Z. S. Li**, and D. Damian, "Understanding User Feedback in Software Ecosystems: A Study on Challenges and Mitigation Strategies," 2023 International Conference on Software Business (ICSOB 2023). **Best Paper Award**

3. M. Sihag*, **Z. S. Li***, A. Dash, N. N. Arony, N. Ernst, and D. Damian, "A Data-Driven Approach for Finding Requirements Relevant Feedback from TikTok and YouTube," 2023 International Requirements Engineering Conference (RE). *(co-first authors)

4. **Z. S. Li**, N. N. Arony, K. Devathasan, and D. Damian, ""Software is the easy part of Software Engineering" – Lessons and Experiences from A Large-Scale, Multi-Team Capstone Course," 2023 International Conference on Software Engineering: Software Engineering Education and Training (ICSE-SEET).

5. N. N. Arony, K. Devathasan, **Z. S. Li**, and D. Damian, "Leveraging Diversity in Software Engineering Education through Community Engaged Learning and a Supportive Network," 2023 International Conference on Software Engineering: Software Engineering Education and Training (ICSE-SEET).

6. **Z. S. Li**, M. Sihag, N. N. Arony, J. B. Junior, T. Phan, N. Ernst, and D. Damian, "Narratives: the Unforeseen Influencer of Privacy Concerns," 2022 International Requirements Engineering Conference (RE).

7. C. Werner, **Z. S. Li**, N. Ernst, and D. Damian, "The lack of shared understanding of non-functional requirements in continuous software engineering: Accidental or essential?," 2020 International Requirements Engineering Conference (RE).

8. **Z. S. Li,** C. Werner, and N. Ernst, "Continuous requirements: An example using gdpr," in 2019 IEEE 27th International Requirements Engineering Conference Workshops (REW), 2019, pp. 144–149.

9. C. Werner, **Z. S. Li**, and N. Ernst, "What Can the Sentiment of a Software Requirements Specification Document Tell Us?," in 2019 IEEE 27th International Requirements Engineering Conference Workshops (REW), 2019, pp. 106–107.

Journals

1. N. N. Arony*, **Z. S. Li***, B. Xu, D. Damian, "Inclusiveness Matters: A Large-Scale Analysis of User Feedback", under review in IEEE Transactions on Software Engineering. *(co-first authors)

2. **Z. S. Li,** C. Werner, N. Ernst, and D. Damian, "Towards privacy compliance: A design science study in a small organization," Information and Software Technology, vol. 146, p. 106868, 2022.

3. C. Werner, **Z. S. Li,** D. Lowlind, O. Elazhary, N. A. Ernst, and D. Damian, "Continuously managing nfrs: Opportunities and challenges in practice," IEEE Transactions on Software Engineering, 2021.

4. C. Werner, **Z. S. Li,** and D. Damian, "Can a machine learn through customer sentiment?: A cost-aware approach to predict support ticket escalations," IEEE Software, vol. 36, no. 5, pp. 38–45, 2019.

5. O. Elazhary, C. Werner, **Z. S. Li,** D. Lowlind, N. A. Ernst, and M.-A. Storey, "Uncovering the benefits and challenges of continuous integration practices," IEEE Transactions on Software Engineering, 2021.

Book Chapters

1. N. N. Arony, K. Devathasan, **Z. S. Li**, and D. Damian, "Software Engineering through Community Engaged Learning and an Inclusive Network," to appear in Equity, Diversity, and Inclusion in Software Engineering: Best Practices and Insights, Apress, 2023.

2. **Z. S. Li** and C. Werner, "Ongoing Challenges and Solutions of Managing Data Privacy for Smart Cities," in Smart Cities in Asia, Springer, 2022, pp. 23–32.