IRIS MA

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Education

University of California, Irvine   **Sep. 2022 – Present**
Ph.D. in Software Engineering   *Irvine, California*

Advisor: Cristina Videira Lopes

Iowa State University   **Sep. 2017 – May 2022**
B.S. in Computer Science, and B.S. in Agronomy   *Ames, Iowa*

Publications

[**c3**] <u>Iris Ma</u>, Alberto Krone Martins, and Cristina V. Lopes. **Integrating AI Tutors in a Programming Course** . 1st ACM Virtual Global Computing Education Conference (SIGCSE Virtual). December 2024

[**c2**] Md Rakib Hossain Misu, Cristina V. Lopes, <u>Iris Ma</u>, and James Noble. **Towards AI-Assisted Synthesis of Verified Dafny Methods**. Proc. ACM Softw. Eng. 1, FSE, Article 37 (July 2024), 24 pages.

[**p1**] Cristina V. Lopes, Vanessa I. Klotzman, <u>Iris Ma</u>, and Iftekar Ahmed. **Commit Messages in the Age of Large Language Models**. arXiv preprint arXiv:2401.17622. January 2024.

[**c1**] <u>Iris Ma</u>, and Cristina V. Lopes. **Improving the Quality of Commit Messages in Students' Projects**. IEEE/ACM 5th International Workshop on Software Engineering Education for the Next Generation (SEENG-2023), Melbourne, Australia, 2023, pp. 1-4.

Work Experience

University of California, Irvine   **September 2022 – Present**
Graduate Student Researcher & Teaching Assistant   *Irvine, California*

- Developed RAGMan, an AI-powered tutoring system using Retrieval Augmented Generation for homework questions, used by over 1,000 students with 98% accuracy in responses and 78% reporting enhanced learning.
- Conducted research in the area of software engineering focusing on enhancing large language models' proficiency in verified programming and contributing verified solutions to benchmark datasets.
- Engaged in software engineering research aimed at improving the quality of commit messages in student projects by modifying GitHub Desktop to provide structured guidance, resulting in more informative and clear commit messages.
- Reporting the results in scientific conferences and journal publications.

Corteva Agriscience   **June 2023 – September 2023**
Software Engineer Intern   *Johnston, Iowa*

- Led a team of 7 individuals in the successful development of a web application focused on image analysis and data inspection, harnessing a tech stack comprising Angular, .NET, Entity Framework, Azure cloud services, and Flask.
- Designed, implemented, and optimized the application to handle extensive image analysis, leading to a 90% enhancement in data collection efficiency and effectively addressed ergonomic injury risks associated with manual measurement.
- Pioneered the creation of an Azure-based trigger function, providing real-time monitoring of newly uploaded images to the database. This innovation enabled users to seamlessly upload an unlimited number of images without any waiting periods, concurrently reducing development resource requirements.
- Constructed and deployed a robust microservice for object detection with over 80% accuracy. By integrating API to access raw images stored in cloud, realizing efficient data communication and analysis capability at minimum cost.

Iowa State University   **May 2021 – May 2022**
Undergraduate Research Assistant   *Ames, Iowa*

- Enhanced compiler to compile with latest language features from Java, optimizing its performance and capabilities.
- Conducted in-depth research on adoption rates and impacts of new Java language features in open-source projects hosted on GitHub. Utilized Python and Excel for data collection, processing, and analysis.

Iowa State University   **August 2020 – December 2021**

Tutor   *Ames, Iowa*

- Mentored more than 20 undergraduate students throughout 3 semesters, providing comprehensive guidance and support in core computer science courses.

Presentations & Talks

[**p2**] "Improving the Quality of Commit Messages in Students' Projects", ICSE SEENG [Melbourne, Australia, 2023]

[**p1**] "New Java Language Features Adoption on GitHub Hosted Open Source Projects", Undergraduate Research Symposium [Ames, Iowa, 2022]

Community Service

- Reviewer, ACM Virtual Global Computing Education Conference (SIGCSE Virtual 2024), reviewed 5 papers
- Student volunteer, Southern California Software Engineering Symposium (SuCSES 2023)
- Student volunteer, ACM SIGPLAN International Conference on Systems, Programming, Languages and Applications: Software for Humanity (SPLASH 2021)

Scholarships, Awards, & Grants

University of California Irvine

[2024] **Beall Applied Innovation Proof-of-Product Grant** ($48,000)
[2023] **ESEC/FSE Conference Travel Fund** ($2450)
[2022] **New Ph.D. Student Fellowship** ($2500)

Iowa State University

[2021] **Robert and Cecile Mitchell Scholarship** ($2650)
[2021] **International Incentive Scholarship** ($1500)
[2021] **Global Scholars Award for Undergraduate Retention** ($500)
[2020] **International Incentive Scholarship** ($1500)
[2018 – 2022] **Dean's List Honors** (10 times)

Mentoring

Farhan Zaman, Undergraduate Student(UCI)(Summer 2024 – present)
Andy Anh-Huy Tonthat, Undergraduate Student(UCI)(Summer 2024 – present)
<u>**Mohammad Mirzaei**</u>, Undergraduate Student(UCI)(Summer 2024 – present)
Ryan Zhuang, Undergraduate Student(UCI)(Summer 2024 – present)
Avery Zhuang, Undergraduate Student(UCI)(Summer 2024 – present)
Derek Xu, Undergraduate Student(UCI)(Winter 2024 – present)
Jianfeng Ma, Undergraduate Student(UCI)(Winter 2024 – present)
<u>**Custo Yang**</u>, Undergraduate Student(UCI)(Winter 2024 – present)

Technical Skills

Languages: Python, Java, C, C++, C#, HTML/CSS, JavaScript, SQL
Developer Tools: VS Code, Eclipse, Google Cloud Platform, Android Studio, AWS, Azure
Technologies/Frameworks: Linux, Node.js, .NET Core, Angular, React, GitHub, JUnit, WordPress