

Maryam Arab

Postdoctoral Research Fellow
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EMPLOYMENT

University of Michigan
Postdoctoral Fellow at the School of Information

Ann Arbor, MI
2024 - Current

EDUCATION

George Mason University
Ph.D. in Computer Science
Thesis: "Explicit Programming Strategies"
Advisor: Thomas LaToza

Fairfax, VA
2017 - 2024

Old Dominion University
M. S. in Computer Science
Thesis: Magnopark: Crowd-sourcing parking spot locator

Norfolk, VA
2014 - 2016

Tehran Markaz University, School of Engineering
B.S. in Electrical and Computer Engineering

Tehran, Iran
2002 - 2007

RESEARCH INTERESTS

Human-Computer Interaction, Software Engineering, AI

PEER REVIEWED PUBLICATIONS

- 1 Maryam Arab, Thomas D. LaToza, Jenny T. Liang, and Amy J. Ko, "An Exploratory Study of Sharing Strategic Programming Knowledge. , *CHI Conference on Human Factors in Computing Systems* (CHI 2022).
- 2 Maryam Arab, Jenny T. Liang, Yang Yoo, Amy Ko and Thomas LaToza. "HowToo: A Platform for Sharing, Finding, and Using Programming Strategies." *IEEE Symposium on Visual Languages and Human-Centric Computing* (VL/HCC 2021) : 1-9.
- 3 Maryam Arab, Tamer Nadeem. "MagnoPark - Locating On-Street Parking Spaces Using Magnetometer-Based Pedestrians' Smartphones" *IEEE SECON* 2017: 1-9.
- 4 Jenny T. Liang, Maryam Arab, Minhyuk Ko, Amy J. Ko and Thomas D. Latoza. "A Qualitative Study on the Implementation Design Decisions of Developers." *IEEE/ACM 45th International Conference on Software Engineering* (ICSE 2023): 435-447. (***Distinguished Paper Award**).
- 5 Thomas D. LaToza, Maryam Arab, Dastyni Loksa and Amy J. Ko. "Explicit programming strategies." *Empirical Software Engineering* 25 (ESE 2019): 2416 - 2449.
- 6 Maryam Arab, Tamer Nadeem. "MagnoPark - Locating On-Street Parking Spaces Using Magnetometer-Based Pedestrians' Smartphones." *Annual IEEE International Conference on Sensing, Communication, and Networking-SECON* 2017: 1-9.
- 7 Jing He, Dong Si, Maryam Arab. "Detection of Secondary Structures from 3D Protein Images of Medium Resolutions and its Challenges." *International Conference on Image and Graphics (ICIG)* 2015: 147-155.

TALKS

- 1 "An exploratory study of sharing strategic programming knowledge", *ACM SIGCHI*, New Orleans, LA, May 2022.
- 2 "HowToo: A Platform for Sharing, Finding, and Using Programming Strategies", *IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC)*, Saint Louis, Missouri, September 2021.
- 3 "MagnoPark - Locating On-Street Parking Spaces Using Magnetometer-Based Pedestrians' Smartphones", *IEEE International Conference on Sensing, Communication and Networking*, San Diego, CA, Jun 2017.

RESEARCH MENTORSHIP

University of Michigan: Ashley Chang, Jiacheng Zhang, Yuyu Yang

George Mason University: Yang Yoo, Hasan Asif, Stephen Hull, Lekha Sarangapani (Master's students)

Carnegie Mellon University: Jenny Liang (Ph.D. student, former undergrad)

Aspiring Scientists' Summer Internship Program: Sneha Iyer, Valentina Hong

ACADEMIC HONORS

Distinguished Paper Award, International Conference on Software Engineering (ICSE), 2023.

Research Merit Scholarship, George Mason University, VA, 2022.

Travel grant to attend CRA-W Grad Cohort workshop in San Francisco, CA, 2018.

Teaching Award, Old Dominion University, VA, 2015.

PROFESSIONAL RESEARCH EXPERIENCE

Research Assistant, George Mason University, May 2017 - Present.

- Conducted research in HCI and software tool design, focusing on the interaction between developers and technology.
- Developed experimental designs, collected and analyzed data, and authored research reports for academic publications. Mentored seven undergraduate and graduate students in research initiation and development.
- Created a programming strategy language and compiler to convert tacit programming knowledge into an explicit, machine-understandable format.
- Designed and implemented a platform for sharing, requesting, and searching programming strategies, fostering a collaborative learning environment for developers.

Research Assistant, Old Dominion University, January 2015 - December 2016.

- Developed a mobile app for crowd-sourced curbside parking detection using sensor data from pedestrians' smartphones.
- Created a smart driver support system that detected street lanes and provided real-time lane change guidance.

TEACHING EXPERIENCE

Teaching Assistant, George Mason University

- SWE 619: Software Modeling/ Architectural Design (2024)
- SWE 645: Component-based Software Development(2024)
- SWE 642: Software Engineering for the World Wide Web (2023 - 2024)
- CS 112: Introduction to Computer Programming (2017-2018)

Lab Instructor, George Mason University

- CS 112: Introduction to Computer Programming (2017)

Teaching Assistant, Old Dominion University

- CS 330 : Object-Oriented Design and Programming (2015-2016)

PROFESSIONAL WORK EXPERIENCE (In the U.S.)

Software Developer & Designer, Department of Information Technology Services (ITS), Old Dominion University (March 2021 - August 2023)

Designed and developed web application to support the university's instructors and students.

Intern Web developer, Nexus Direct Co. (April 2016 - October 2016)

Developed the company website.

SERVICE

Paper Reviewer - *The ACM CHI conference on Human Factors in Computing Systems* 2024, 2025

Paper Reviewer - *IEEE Transactions on Software Engineering* 2020

SKILLS

Research Methods: Mixed methods, Interview, Surveys, Contextual Inquiry, Storyboarding, Speed Dating, Software Usability Testing, Thematic Analysis, Software Repository Data Mining

Platforms: Ubuntu Linux, Windows, Mac

Programming: Java, Android, C#, ASP.net, PHP, Python

Web Development: HTML, CSS, JavaScript, XML, Grails, jQuery, JSON, Spring Framework, MVC, React, Angular, React, Node.js

Tools: IntelliJ Idea, Eclipse, MS Visual Studio .Net, Android Studio, WebStorm, Jupyter Notebook, PyCharm, Team Foundation Server, SharePoint Server, CVS, SVN, JUnit, Git

Databases: MySQL, MS SQL Server, Firebase, NoSQL