

Afsoon Afzal

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- RESEARCH INTERESTS
- ◇ **Software Engineering**
 - ◇ **Automated Quality Assurance**
 - ◇ **Program Analysis**
 - ◇ **Robotics**
- EDUCATION
- ◇ **PhD. in Software Engineering** Aug. 2015 – present (Expected May 2021)
Institute for Software Research, School of Computer Science
Carnegie Mellon University, Pittsburgh, United States
ADVISOR: Dr. Claire Le Goues
THESIS TITLE: Automated Testing of Robotic and Cyberphysical Systems
 - ◇ **M.Sc in Software Engineering** May 2019
Institute for Software Research, School of Computer Science
Carnegie Mellon University, Pittsburgh, United States
GPA: 4.00/4.00
 - ◇ **B.Sc. in Software Engineering** Sept. 2011 – 2015
Department of Computer Engineering
Sharif University of Technology, Tehran, Iran
THESIS TITLE: Bisulfite Genome Sequencing
GPA: 18.22/20.00
- HONORS AND AWARDS
- ◇ **Recipient of Presidential Fellowship** 2017-2018
Among hundreds of graduate students at *Carnegie Mellon University*.
 - ◇ **Honorable Mention Award (top 5% of all submissions)** 2018
International Conference of Human-Computer Interaction (*CHI'18*), Montreal, Canada
 - ◇ **Ranked in top 10** 2015
Among more than 120 B.Sc. *Computer Engineering* students, class of 2015
 - ◇ **4th Place** July 2013
in the *International RoboCup Competitions*, Rescue Simulation League, as the leader of *Poseidon* team, Eindhoven, Netherlands
 - ◇ **2nd Place** Jan. 2013
in the *National Java Challenge Competitions*, Sharif University of Technology, Tehran, Iran
 - ◇ **5th Place** July 2012
in the *International RoboCup Competitions*, Rescue Simulation League, as the leader of *Poseidon* team, Mexico City, Mexico
 - ◇ **3rd Place** July 2009
in the *International RoboCup Competitions*, Rescue Simulation League, as the member of *Poseidon* team, Graz, Austria
- VOLUNTEER WORK
- ◇ **Journal Reviewer** 2020
IEEE Transactions on Software Engineering (TSE)
 - ◇ **Program Committee Member** 2020
Replication challenge track, International Conference on Predictive Models and Data Analytics in Software Engineering (PROMISE)
 - ◇ **Journal Reviewer** 2019
IEEE Transactions on Software Engineering (TSE)

- ◇ **Admission Committee Member** 2019
Institute for Software Research, Carnegie Mellon University
- ◇ **Program Committee Member** 2019
Demonstration track, International Conference of Software Engineering (ICSE) at *Montreal, Canada*
- ◇ **Program Committee Member** 2018
Posters track, International Conference of Software Engineering (ICSE) at *Gothenburg, Sweden*
- ◇ **Student volunteer at International Conference of Software Engineering** 2016
One of the top conferences in software engineering at *Austin, Texas*.

TEACHING AND
WORKING
EXPERIENCE

- ◇ **Product Integrity Intern at [Apple Inc.](#)** Summer 2018
 - Interned with Mac Systems Quality team at Apple Inc., Cupertino, California
- ◇ **Software Research Intern at [ABB Inc.](#)** Summer 2017
 - Interned at ABB corporate research center, Raleigh, North Carolina
- ◇ **Senior Application Architect at [Congenial Mobile Co.](#)** Jan. 2013 – Aug. 2015
 - Developed the *CafeBazaar* which is an Android app-store for Iranian developers and users Winter 2013
 - Desgined and developed *CafeBazaar Payment System* Spring 2013 - Aug. 2015
 - Scrum master of *CafeBazaar Payment Project* Summer 2013 - Aug. 2015
 - Desgined and developed *CafeBazaar* in-app purchase support Fall 2013
 - Developed *Divar* which is a classified system containing website, Android app and IOS app Winter 2013
- ◇ **Teaching Assistant**

Carnegie Mellon University

 - Software Engineering for Startups Spring 2018
 - Analysis of Software Artifacts Spring 2017

PUBLICATIONS

- ◇ **It Takes a Village to Build a Robot: An Empirical Study of The ROS Ecosystem** 2020
Sophia Kolak, **Afsoon Afzal**, Claire Le Goues, Michael Hilton, Christopher S. Timperley, In Proceedings of *International Conference on Software Maintenance and Evolution (ICSME'20)*, Adelaide, Australia.
- ◇ **A Study on Challenges of Testing Robotic Systems** 2020
Afsoon Afzal, Claire Le Goues, Michael Hilton, Christopher S. Timperley, In Proceedings of *International Conference on Software Testing, Verification and Validation (ICST'20)*, Porto, Portugal.
- ◇ **SOSRepair: Expressive Semantic Search for Real-World Program Repair** 2019
Afsoon Afzal, Manish Motwani, Kathryn T. Stolee, Yuriy Brun, Claire Le Goues, *IEEE Transactions on Software Engineering (TSE)*.
- ◇ **Quality Assurance Automation in Autonomous Systems** 2018
Afsoon Afzal, In Proceedings of *Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering Doctoral Symposium (ESEC/FSE'18)*, Florida, USA.

- ◇ **[Engineering Paper] An IDE for Easy Programming of Simple Robotics Tasks** 2018
David Shepherd, Patrick Francis, David Weintrop, Diana Franklin, Boyang Li, **Afsoon Afzal**,
In Proceedings of *International Working Conference on Source Code Analysis and Manipulation*
(SCAM'18), Madrid, Spain.

- ◇ **A Study on the Use of IDE Features for Debugging** 2018
Afsoon Afzal, Claire Le Goues, In Proceedings of *Mining Software Repositories Challenge Track*
(MSR'18), Gothenburg, Sweden.

- ◇ **A Turing Test for Genetic Improvement** 2018
Afsoon Afzal, Jeremy Lacomis, Claire Le Goues, Christopher S. Timperley, In Proceedings of
International Genetic Improvement Workshop (GI'18), Gothenburg, Sweden.

- ◇ **Crashing simulated planes is cheap: Can simulation detect robotics bugs
early?** 2018
Christopher S. Timperley, **Afsoon Afzal**, Deborah S. Katz, Jam Marcos Hernandez, Claire Le
Goues, In Proceedings of *International Conference on Software Testing, Verification and Vali-
dation (ICST'18)*, Västerås, Sweden.

- ◇ **Evaluating CoBlox: A Comparative Study of Robotics Programming Environments
for Adult Novices** 2018
David Weintrop, **Afsoon Afzal**, Jean Salac, Patrick Francis, Boyang Li, David Shepherd, Diana
Franklin, In Proceedings of *International Conference of Human-Computer Interaction (CHI'18)*,
Montreal, Canada.
CHI'18 Honorable Mention Award (top 5% of all submissions)

GRADUATE
PROJECTS

- ◇ **Robotics QA:** In this project, we discover and develop powerful methods to automatically detect, localize and fix defects in real-world autonomous systems using low-fidelity, software-based simulation.
- ◇ **CoBlox:** In this project, with inspiration from block-based programming languages, initially designed as an introductory programming environment for education, we created CoBlox, a block-based interface for programming a one-armed industrial robot.
- ◇ **SOSRepair:** Automatic program repair tool which generates high quality patches by replacing the buggy fragment of code with a correct implementation that is already written by developers in maybe some other project.