EMAD AGHAYI

Fairfax, VA 22030

eaghayi@gmu.edu ⬦ http://mason.gmu.edu/~eaghayi

RESEARCH INTERESTS

Software engineering, programming tools, human-computer interaction, crowdsourcing.

PROFESSIONAL EXPERIENCE

Research Software Engineer at Developers Experience (DevX) lab *Aug 2017 - Present*
I work at the intersection of software engineering and human-computer interaction. I study the interaction between developers and programming development tools. My research goal is to make developers more productive by providing better development tools and approaches. To achieve this goal, my research involves understanding developer behaviors, identifying problems, and designing tools and approaches to help with those problems using various human-centered methods at each stage.

Senior Software Engineer at ISC *Dec 2015 - Jul 2017*
R&D in the area of large scale software, Leaded development team, built a large scale financial mobile banking software.

Principal Software Engineer at CityDI *Apr 2013 - Nov 2015*
R&D in software engineering area, Leaded development team, built and maintained multiple software projects.

Researcher at Network Systems Research Lab , UT *Sep 2011 - Feb 2017*
Researched on wireless networks, remote health monitoring, smart homes.

Software Developer at Saamaneh Paytakht *Sep 2010 - Mar 2012*
Developed and maintained an electronic health records software.

EDUCATION

George Mason University, Fairfax, VA, USA *Aug 2017 - Present*
Ph.D. in Computer Science, Department of Computer Science.

University of Tehran (UT), Teh, IR *Aug 2011 - Mar 2014*
M.Sc. in Information Technology Engineering, Network Science and Technology Group.

Shiraz University of Technology, Shiraz, IR *Aug 2005 - Jun 2010*
B.Sc. in Information Technology Engineering, Department of Computer and IT.

PUBLICATIONS

(As of Apr, 2021) H-Index: 4; Citations: 256

Journal Articles

[J1] **E. Aghayi**, T. D. LaToza,*"How Does Microtasking Impact Programming?"*, Under review, 2021.

[J2] **E. Aghayi**, T. D. LaToza, P. Surendra, S. Abolghasemi ,*"Crowdsourced Behavior-Driven Development."*, Journal of Systems and Software, 2020.

[J3] M. Hoseini, **E. Aghayi**, F. Saghafi *"A multidimensional model of knowledge sharing behavior in mobile social networks."* Kybernetes, 2018.

[J4] S. Majumder, **E. Aghayi**, M. Noferesti, H. Memarzadeh-Tehran, T. Mondal, Z. Pang, M. Deen *"Smart homes for elderly healthcare—Recent advances and research challenges."*, Sensors, 2017.

Refereed Conferences papers

[C1] Shinobu Saito, Yukako Iimura **E. Aghayi**, T. D. LaToza *"Does Microtask Programming Work in Industry?"*, ESEC/FSE 2020 Industry Papers. (acceptance rate: 36%) (distinguished research award from Information Processing Society of Japan)

[C2] **E. Aghayi**,A. Massey, T. D. LaToza *"Find Unique Usages: Helping Developers Understand Common Usages"*, VL/HCC 2020. s. (acceptance rate: 30%)

[C3] **E. Aghayi**, M. Khansari, H. Memarzadeh-Tehran *"A new back-off mechanism for the S-MAC protocol with applications in healthcare."* International Symposium on Telecommunications, 2014.

Refereed Demos, Posters, and Other Papers

[O1] **Emad Aghayi**. *"Large-Scale Microtask Programming."*, GC VL/HCC 2020.

[O2] Dubey Aarushi, Thomas LaToza, and **Emad Aghayi**. *"Crowd Microservices Hackathon: Utilizing Crowdsourcing for Microtask Programming on a Large-Scale."* Journal of Student-Scientists' Research (2019).

Theses

[T1] **Emad Aghayi**. *"A New Back-off Mechanism for the S-MAC Protocol"*. Network Science and Technology Group, University of Tehran, 2014

[T2] **Emad Aghayi**. *"Various Queue Management Algorithms in TCP"*. Department of Computer and IT, Shiraz University of Technology, 2009

ACADEMIC SERVICES

Undergraduate Mentees:

Ankit Roy, Raunak Daga, GMU ASSIP program	*2020*
Aarushi Dubey, GMU ASSIP program	*2019*

Reviewer:

CSCW: journal of computer supported cooperative work	*2019*
Sensors: journal on the science and technology of sensors and biosensors	*2019*
Kybernetes: international journal of cybernetics, systems and management sciences	*2019*

Bioengineering: journal on the science and technology of bio-engineering *2019*

INTERACT: international conference on human-computer interaction *2019*

TEACHING

Teaching Assistant, George Mason University, Fairfax, VA, USA *2017*
Course: Object Oriented Programming (CS 211)

Instructor, Azad University, Teh, IR *2015*
Course: Introduction to Software Engineering

Instructor, Azad University, Teh, IR *2015*
Course: Operating Systems

Teaching Assistant,University of Tehran, Teh, IR *2014*
Course: Wireless Sensor Network

AWARDS AND HONORS

Won the Distinguished Research Award from Special Interest Group on Software Engineering *2020*

Nominee for Most Influential Paper Award, Symposium on Visual Languages and Human-Centric Computing *2020*

Won the **first place** among 400 participants in PatriotHacks hackathon *2019*

Graduate Research Assistant, George Mason University, *Fall 2017 - present*

Full tuition waiver scholarships, Volgenau School of Engineering, GMU *Fall 2017 - present*

Travel Grant to attend International Conference on Smart Sensors and Application *2015*

Travel Grant to attend International Symposium on Telecommunications *2014*

Member of the National Organization for Development of Exceptional Talents (NODET) *2000-2004*

FORMAL PRESENTATIONS

Morgan State University, School of Computer,Virtual *2021*
Title: Microtask Programming
Symposium on Visual Languages and Human-Centric Computing (VL/HCC),Virtual *2020*
Title: Large-scale Microtask Programming
Title: Find Unique Usages: Helping Developers Undrestand Common Usages

International Conference on Smart Sensors and Application, Universiti Teknologi Malaysia, Malaysia ,Kuala Lumpur *2015*
Title: Wireless Body Area Networks

International Symposium on Telecommunications, IR, Tehran *2014*
Title: MAC protocol for WSNs

University of Tehran, IR, Tehran *2014*
Title: MAC protocol for WSNs

SOFTWARE DEVELOPED

Crowd Microservices, a cloud-IDE for mcirotask programming developerd by Express.js, Angular, Firebase (URL)

Mobile Banking, a client and server software allows customers to bank on the go, view account balance, generate Debit Card PIN, transfer funds, pay bills and so much more. Implemented by Java, Spring, Hibernate, Oracle Database, Android. **It has 10+ million daily active users.**

Find Unique Usage, a plugin for IntelliJ IDEA (https://github.com/eaghayi/find-unique-usage)

Excavator, a Java base parser of Firebase files (https://github.com/eaghayi/excavator)

Plotter, a data visualizer implemented by Python (https://github.com/eaghayi/plotter)

Voting, a web app with Spring Security, Spring MVC, Firestore (https://github.com/eaghayi/voting)

Polling, A polls web app with Django framework (https://github.com/eaghayi/polling)

BioPay, BioPay is a prepayment system trough Bio-metric fingerprint and Face recognition developed by C# and Android.

Virtual-World Mobile Solution, a mobile app which has services such as mobile payment, mobile retail, mobile platforms. It works on iPhone, iPads and Android tablets and Android devices.

Dandelion, a J2EE multi-tier application which use technologies such as Spring, Hibernate, Soap web services in order to provide a tool to inform people and departments about any event via SMS, email and Soap web services.

Top-up, it proposed to achieve mobile operators services via mobile and The Internet. developed by Spring and hibernate, Oracle Database.

CorpoMate, a J2EE multi-tier application which on data layer uses Hibernate and Soap web service client to access to the core banking data base and services

TECHNICAL STRENGTHS

Back-end: *Advanced Knowledge of Java SE, Java EE, JPA, JTA, JMS, Servlet, Swing, Java Media Framework, Experience with Nodes.js, Express, Python and C#, Spring (Spring Core, Spring MVC, Spring Boot, Spring Security, Spring Data).*
Front end: *JSF, JSP, JavaScript, HTML, CSS, User Experience Testing.*
Containers: *Apache tomcat, JBoss EAP, Oracle WebLogic.*
Web-Service: *REST (JAX-RS, Jersey), SOAP (JAX-WS, WSDL, Axis2), Spring WS).*
Database: *Microsoft SQL, Oracle, MySQL, Firebase, Redis.*
Mobile development: *Android.*
Cloud: *Google Cloud Functions, Heroku Platform.*
Test: *Defect and Bug Discovery, Junit, Combinatorial test, Mutation testing (PIT).*
Analyzing and Monitoring: *SonarQube, SoapUI, JProfiler, Apache JMeter.*