

# UMAR FAROOQ

Ph.D. Candidate, Computer Science & Engineering  
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## RESEARCH INTERESTS

My research spans the intersection of software engineering, programming languages, and mobile systems. I explore ideas from each and apply them on automatic detection, optimization, prevention, and mitigation of issues in software. My research outcomes have been published in top conferences, including MobiSys, ASPLOS, and OOPSLA.

## EDUCATION

- **University of California, Riverside (UCR)** Riverside, CA  
Ph.D. in Computer Science & Engineering Sept. 2016 – expected Summer 2021  
**Advisor:** Zhijia Zhao  
**Dissertation Committee:** Rajiv Gupta, Nael Abu-Ghazaleh, Manu Sridharan
- **Virtual University of Pakistan (VU)** Lahore, Pakistan  
Bachelor of Science in Computer Science Sept. 2008 – Aug. 2012

## AWARDS & HONORS

- **ACM SIGMOBILE Research Highlights:** Awarded in 2018 for MobiSys'18 paper.
- **Best Paper Runner-up Award:** At MobiSys'18 for RuntimeDroid paper.
- **Deans Fellowship Award:** At University of California Riverside for 2017-2018.
- **NSF Travel Grant Awards:** ASPLOS'18, MobiSys'18.
- **University Merit Scholarship:** Awarded to 3 top ranked students for 2010-12 academic years at Virtual University.

## PUBLICATIONS

- **Umar Farooq**, Zhijia Zhao, Manu Sridharan and Iulian Neamtiu. *LiveDroid: Identifying and Preserving Mobile App State in Volatile Runtime Environments*. In Proceedings of the ACM on Programming Languages (PACMPL) (**OOPSLA'20**).
- **Umar Farooq\***, A.B. Siddique\*, Fuad Jamour, Zahijia Zhao and Vagelis Hristidis. *AARSynth: App-Aware Response Synthesis for User Reviews*. Under Review – arXiv:2007.15793 (\*= co-primary)
- **Umar Farooq** and Zhijia Zhao. *RuntimeDroid: Restarting-Free Runtime Change Handling for Android Apps*. GetMobile: Mobile Computing and Communications, Volume 22 Issue 4. (**Invited Article**)
- Lin Jiang, Xiaofan Sun, **Umar Farooq** and Zhijia Zhao. *Scalable Processing of Contemporary Semi-Structured Data on Commodity Parallel Processors – A Compilation-based Approach*. In Proceedings of the Twenty-Fourth International Conference on Architectural Support for Programming Languages and Operating Systems (**ASPLOS'19**).
- **Umar Farooq** and Zhijia Zhao. *RuntimeDroid: Restarting-Free Runtime Change Handling for Android Apps*. Proceedings of the 16th Annual International Conference on Mobile Systems, Applications, and Services (**MobiSys'18**). [\[Best Paper Runner-up Award\]](#) [\[ACM SIGMOBILE Research Highlights\]](#)

## PROFESSIONAL EXPERIENCE

- **University of California, Riverside** Riverside, CA  
Graduate Researcher Sept. 2016 - Present
  - **LiveDroid:** Identifying and Preserving Mobile App States.(OOPSLA'20)
  - **JPStream:** Automatic Parallel processing for JSON queries using compilation approach. (ASPLOS'19)
  - **RuntimeDroid:** Restarting-free runtime for configuration changes handling in Android. (MobiSys'18)
- **aliftek Inc.** Lahore, Pakistan  
Software Engineer Jan. 2013 - Jun. 2016
  - Developed 3D Racing game using C#/Unity3D for mobile platforms (Android & iOS).

- Developed apps for iOS and Android using cross-platform technologies e.g. Cordova, PhoneGap & React.

## TkXel Pakistan

Lahore, Pakistan

Software Engineer

Mar. 2012 - Dec. 2012

- Developed apps for mobile using Java/Android SDK.
- Implemented back-end REST APIs using CakePHP & Google App Engine.

## TEACHING EXPERIENCE & INVITED TALKS

### Introduction to Software Engineering (CS 180)

UC Riverside, CA

Teaching Assistant, Instructor(s): Prof. Zhijia Zhao, Prof. Manu Sridharan

Fall '18,'20, Spring '19,'20

- Upper division undergraduate course;

### Compiler Construction (CS 201)

UC Riverside, CA

Teaching Assistant, Instructor: Prof. Zhijia Zhao

Winter 2019

- Graduate level course;

### Android Applications: Design and Development

Moreno Valley, CA

Instructor

Nov. 2016, Sept 2017

- Moreno Valley School District(MVSD), Teachers Training Program.

### Android Applications Development

Lahore, Pakistan

Instructor

Summer 2012

- undergraduate level class at Virtual University of Pakistan.

## PROFESSIONAL SERVICES

- **Program Committee:** ICCQ'21.
- **Sub-Reviewer:** CGO'21, NPC'19, ISC'19, ICS'18, HiPC'18.

## SELECTED PROJECTS

- **DroidPerf:** Benchmark & performance analysis for Android CPU & I/O governors using ARM performance counters.
- **GraphEvolution:** How real graphs evolve over-time and their properties e.g degree, triangles, diameter evolution.
- **Product2Vec:** Influenced by Word2Vec, converts the retail store products to vectors and measures their similarity.
- **E-Commerce Search Engine:** search engine to search & list related items based on the relationship of items.

## TECHNICAL SKILLS

- **Languages:** Java, JavaScript, C/C++, C#, PHP, Python.
- **Program Analysis/Re-factoring:** Soot, LLVM, IntelliJ Idea Plugin Development.
- **Frameworks:** Android SDK, ReactJS/Native, Apache Cordova, Unity3D, Google App Engine, Apache Hadoop.

## REFERENCES

### Zhijia Zhao

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Computer Science and Engineering  
University of California, Riverside  
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### Manu Sridharan

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### Rajiv Gupta

Distinguished Professor  
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University of California, Riverside  
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### Nael B. Abu-Ghazaleh

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