Faria Kalim

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Interests

Distributed systems

Education

Ph.D., Computer Science **08/2015 — present**
University of Illinois at Urbana-Champaign (UIUC), USA

- Sohaib and Sara Abbasi Fellow **08/2015 — present**
- Advisor: Prof. Indranil Gupta

M.S. alongside Ph.D., Computer Science **08/2015 — 12/2017**
University of Illinois at Urbana-Champaign (UIUC), USA

B.E., Computer Science **08/2011 — 06/2015**
National University of Sciences & Technology (NUST), Pakistan

- C.GPA: 4.00/4.00; Class Standing: 1/76

Current Graduate Research, DPRG, UIUC

Stream Processing as a Service **Present**

- To simplify deployment of stream processing jobs on cloud services, we build Meezan that presents novice users of stream processing systems with a range of deployment options per job. Each option has a different cost where costlier options satisfy more tightly constrained service level objectives.

Undergraduate Research, AN-DASH, NUST

Crater: CRowd-sourcing **A**pplication **T**o measure **R**oad conditions **05/2014 – 06/2015**

- A cloud-hosted back-end used classification methods to discover patterns representing potholes and speedbumps on the road using crowd-sourced accelerometer readings from smartphones.
- Project awarded grant through Microsoft Azure for Research (2014 – 2015).

Publications

- **Faria Kalim**, Jaehoon Paul Jeong, Muhammad Usman Ilyas, "Crater: A Crowd Sensing Application to Estimate Road Conditions", *IEEE Access 4* (2016): 8317-8326.
- **Faria Kalim**, Le Xu, Sharanya Bathey, Richa Meherwal, Indranil Gupta, "Henge: Intent-driven Multi-Tenant Stream Processing", *Symposium of Cloud Computing* (2018)
- **Faria Kalim**, Thomas Cooper, et al., "Caladrius: A Performance Modelling Service for Distributed Stream Processing Systems", *IEEE International Conference on Data Engineering* (2019)
- **Faria Kalim**, Karl Palmskog, et al., "Kaizen: Building a Performant Blockchain System Verified for Consensus and Integrity", *Formal Methods in Computer-Aided Design*, 2019

Posters

- **Faria Kalim** et al., 'Reducing Tail Latencies in Micro-Batch Stream Processing Systems", In *Proceedings of the ACM Symposium on Cloud Computing.* 2017.
- **Faria Kalim**, Shadi Noghabi, Shiv Verma, 'To Edge or Not to Edge?", In *Proceedings of the ACM Symposium on Cloud Computing.* 2017.

Tech Reports

- **Faria Kalim**, Shadi Noghabi., 'Bené: On Demand Cost-Effective Scaling at the Edge", *arXiv pre-print:1806.09265*, 2018.

Internships

Research Intern, VMware Research Group **Summer 2019**

- Management planes are hard to build and maintain. The goal of this internship is to automate the synthesis of optimal and highly performant code that performs cluster management.
- In preparation for submission to OSDI 2020

Software Engineering Intern, Real-Time Compute Team, Twitter **Summer 2018**

- I designed and evaluated the resource management aspects of Caladrius, a system that predicts the future traffic rates of Heron jobs and preemptively scales them to prevent resource bottlenecks.

Research Intern, Cloud Container Operating System Project, IBM Research **Summer 2017**

- Optimized the scheduler in Spark Streaming to prevent load imbalances and mitigate stragglers.

Software Engineering Intern, Site Reliability Engineering Team, Uber **Summer 2016**

- Blackbox is a monitoring system that provided an explicit signal of failed operations witnessed by a user. As Uber must provide 99.99% availability, a difficult challenge was to ensure that the system is 99.995% available—more available than Uber itself—while providing a high signal-to-noise ratio.

Select Honors and Awards

- Certificate in Foundations of Teaching awarded by UIUC CITL **2020**
- Invited to Facebook's Women in Research Lean In Event **2019**
- Recipient of the NSF travel grant to attend ACM SOSP 2019 **2019**
- Invited to attend the Rising Stars in EECS workshop at UIUC **2019**
- Mavis Future Faculty Fellowship awarded by the UIUC College of Engineering **2019 - 2020**
- Sohaib and Sara Abbasi Fellowship awarded by CS@Illinois **2015 – 2020**
- Recipient of travel funding from CS@Illinois to attend the Grace Hopper Conference **2019**
- Outstanding Teaching Assistant Award awarded by CS@Illinois **Fall 2018**
- Recipient of the Usenix Student Grant, ATC 2017 & travel funding for SoCC **2017, 2018**
- Selected to join Tau Beta Pi, the oldest engineering honor society in the US **2015 – present**
- NUST-SEECS Open House Winner in Software Engineering, 2015
- Recipient of President's Gold Medal for academic excellence in undergraduate studies **2015**

Teaching Experience

Instructor

- CS591IG – Distributed Systems Seminar **Spring 2020**

Graduate Teaching Assistant

- CS425 – Distributed Systems **Fall 2017, 2018**
- As Head-TA of the course, I volunteered to teach a short overview of Apache Spark, which was later also included in the Coursera version of the course.

Service

EuroSys 2019 Shadow PC,
External Reviewer: DSN 2019, IEEE Access

Systems and Software Skills

- Programming Languages (in decreasing order of proficiency): Java, C++, Python, Go
- Programming Models: OpenMP, MPI, Android fundamentals
- Frameworks: Apache Storm, Apache Heron, Apache Spark