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

- Advisor: Prof. Indranil Gupta
- C.GPA: 3.93/4.00

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 built 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.
- Under preparation for submission to EuroSys 2020.

UNDERGRADUATE RESEARCH, AN-DASH, NUST

Crater: CRowd-sourcing Application To measure Road 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.

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	• 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	**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