

# Faria Kalim

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INTERESTS	Distributed systems, high-performance computing	
EDUCATION	<b>Ph.D., Computer Science</b> <i>University of Illinois at Urbana-Champaign (UIUC), USA</i> <ul style="list-style-type: none"><li>Sohaib and Sara Abbasi Fellow</li><li>Advisor: Prof. Indranil Gupta</li><li>C.GPA: 3.88/4.00</li></ul>	08/2015 — present  08/2015 — present
	<b>B.E., Computer Software Engineering</b> <i>National University of Sciences &amp; Technology (NUST), Pakistan</i> <ul style="list-style-type: none"><li>C.GPA: 4.00/4.00; Class Standing: 1/76; Major: Computer Science</li></ul>	08/2011 — 06/2015
RESEARCH EXPERIENCE	<b>Graduate Research, DPRG, UIUC</b> <ul style="list-style-type: none"><li>Currently under review at conference</li></ul> <b>Undergraduate Research Assistant, AN-DASH Laboratory, NUST</b> <ul style="list-style-type: none"><li>Developed classification methods to discover patterns in accelerometer readings from smartphones</li></ul>	Fall 2015 — present  05/2014 – 06/2015
INTERNSHIPS	<b>Software Engineering Intern on the Site Reliability Engineering Team, Uber</b> Summer 2016 <ul style="list-style-type: none"><li>Worked on a monitoring system at Uber that measures the state of the end-to-end user experience.</li><li>The system's goal is to provide an explicit signal of failed operations that a user witnesses rather than inferring it from a perceived drop in operations handled on the server end.</li><li>As Uber must provide 99.99% availability, an interesting challenge in the monitoring system was to ensure that it must be more available than Uber itself—99.995% available—while providing high signal-to-noise ratio.</li></ul>	
SELECT GRADUATE COURSE PROJECTS	<b>Investigating the feasibility of the edge in video analytics applications</b> <ul style="list-style-type: none"><li>Edge computing pushes data/computation from central points to the extremes of the network to reduce transmission cost and latency while improving the quality of service. We investigate the guarantees expected from the edge to discover when it provides performance benefits for video analytics.</li></ul> <b>Exploring cost vs. recovery time tradeoffs of checkpointing in Apache Spark.</b> <ul style="list-style-type: none"><li>To reduce a job's runtime, we perform automated checkpointing in Apache Spark. Using information from past runs of a job, we insert checkpoints when their cost is amortized by reduced recovery time in the face of arbitrary future failures. Initial experiments showed 15% runtime improvement.</li></ul> <b>Parallelization of Sequential Minimal Optimization (SMO)</b> <ul style="list-style-type: none"><li>Optimized SMO in 3 distinct versions: i) a shared memory version with OpenMP ii) a multi-processor version with MPI and iii) a hybrid version with both MPI and OpenMP.</li><li>Experiments showed that a multi-processor implementation with MPI performed best, giving 22x speed-up for the Adult Data Set, and 9x speed-up for the MNIST Data Set.</li></ul>	Spring 2017  Spring 2016  Spring 2016
SELECT UNDERGRADUATE PROJECTS	<b>Crater: A crowd sensing application to estimate road conditions</b> <ul style="list-style-type: none"><li>Service uses smartphones present in a moving vehicle to detect and measure sudden movements and locations without users' involvement</li><li>Machine learning features using pattern classification are hosted as a high-performance-computing elements in the Azure cloud. Results are overlaid on Google Maps</li><li>Crowdsourcing enables data collection and allows for pruning of measurements</li><li>Project awarded grant through Microsoft Azure for Research (2014 – 2015)</li></ul>	Fall 2014 – Spring 2015
SELECT HONORS AND AWARDS	<ul style="list-style-type: none"><li>Sohaib and Sara Abbasi Fellowship, Fall 2015 – present</li><li>Selected by CS @ Illinois to receive travel funding for the 2016 Grace Hopper Conference</li><li>Selected to join Tau Beta Pi, the oldest engineering honor society in the US, Fall 2015 — present</li><li>NUST-SEECs Open House Winner in Software Engineering, 2015</li><li>Recipient of President's Gold Medal for academic excellence in undergraduate studies, 2015</li><li>NUST Scholarship for all semesters since admission in undergraduate studies, Fall 2011 – Fall 2014</li></ul>	
ACTIVITIES	<b>Among the top 50 students in the National Mathematics Talent Contest, Pakistan</b>	2010
SYSTEMS AND SOFTWARE SKILLS	<ul style="list-style-type: none"><li>Programming Languages: Java, C++, Python, Go, Javascript</li><li>Programming Models: OpenMP, MPI, Android fundamentals</li><li>Frameworks: Apache Storm, Apache Spark</li><li>Misc.: MySQL, NodeJS, CSS, HTML, Git, L<sup>A</sup>T<sub>E</sub>X, RESTful APIs.</li></ul>	