Tariq Mahmood

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Education

- Purdue University (West Lafayette, Indiana) Aug 2017
  Ph.D. candidate, Department of Electrical and Computer Engineering
  Major Professor: Mithuna S. Thottethodi (https://engineering.purdue.edu/~mithuna/)
  Doctoral Committee: Sanjay G. Rao, T. N. Vijaykumar, Yiying Zhang
  Doctoral Dissertation: Efficient, Dynamic Mechanisms for Ordering Data Accesses and Management Operations in the Cloud
  Research Interests: Distributed Systems, Cloud Computing, Cloud Storage
- Lahore University of Management Sciences (Pakistan) May 2005
  Bachelor of Science (Hons.), Specialization Cumulative GPA 3.92
  (Major) Computer Science, (Minor) Mathematics

Research

- ACCORD: Automated Change Coordination across Independently Managed Cloud Services
  This work is part of an on-going collaboration between AT&T Labs Research and Purdue University.
  Key idea: A novel coordination protocol for orchestrating changes across independently managed services in a Virtualized Cloud Environment
  Tools: Openstack, Cassandra, Zookeeper, Java
  Testbed: AT&T research cloud based on Openstack
  Publication: Under submission at Middleware 2017
- Karma: Cost-effective Geo-replicated Cloud Storage with Dynamic Enforcement of Causal Consistency
  This (NSF-funded) project focuses on the development of a cloud storage system that offers stronger-than-eventual consistency guarantees.
  Key ideas: Partial replication, consistency preserving dynamic ring binding
  Tools: Cassandra, YCSB, Java
  Testbed: PRObE
  Publication: Under submission at IEEE TCC, preliminary results published as a Purdue Technical Report 2016
  Poster: Presented at the ACM Symposium on Cloud Computing (SoCC) 2016

Work Experience

- AT&T Labs Research (Bedminster, New Jersey) Jun - Aug 2016
  Summer Intern, Cloud Software Research Group
  Designed and developed a new platform that enables automated change coordination across independently managed services in a Virtualized Cloud Environment. The system was fully integrated with the Openstack-based AT&T research cloud. This work spawned a new research direction for my lab, and an on-going collaboration between Purdue University and AT&T Labs Research.
- Purdue University (West Lafayette, Indiana) Jan 2013 - May 2016
  Graduate Assistant, Purdue Libraries Archives and Special Collections Unit
  Worked as a student archivist. My responsibilities included processing collections, developing Finding Aids, and maintaining websites for the collections. I also assisted with developing new processes (automated scripts, and in-house tools) for handling digital collections. This job helped me fund my education.
- Amazon (Seattle, Washington) Jun - Aug 2010
  Summer Intern, Software Development Engineer, Community Platform Team
  Designed and developed a reputation system for Amazon.com. Also worked on the integration of Audible.com into the Amazon services system.

- Lahore University of Management Sciences (Pakistan) Aug 2005 - Jul 2007
  Research Associate, Department of Computer Science
  Worked on the development of a fault tolerant router using open source software. This work was based on my senior year project that aimed at developing a fault tolerant TCP server for generic single threaded applications. Findings were published in the form of an experience report at the South Asian Network Operators Group (SANOG) VIII, Karachi Pakistan in August 2006.

Teaching

- Purdue University (West Lafayette, Indiana) Aug - Dec 2012
  Graduate Teaching Assistant, Department of Mathematics
  For two sections of a freshman course on Calculus. Responsibilities included conducting recitations, making and grading quizzes, proctoring exams, and helping students with their home works
- Lahore University of Management Sciences (Pakistan) Jan - May 2011
  Teaching Assistant, Department of Computer Science
  For the course titled "Graduate Algorithms". Responsibilities included delivering lectures, organizing help sessions and helping with course grading.
- Lahore University of Management Sciences (Pakistan) May 2004 - Jan 2006
  Undergraduate Teaching Assistant, Department of Computer Science
  Courses: Operating Systems, Databases, Data Structures and Algorithms, and Introduction to Computing.

(Select) Academic Projects

- Implementation and evaluation of Dynamic Self Invalidation as a technique that reduces cache coherence overhead in a shared memory multiprocessor. Undertaken during a course on Advanced Computer Architecture under the supervision of Prof. T.N. Vijaykumar. Tools: Simics, Gems, C
- A comparative study of 3G and WiFi networks for mobile devices: Undertaken during a course on Distributed Systems with Prof. Y. Charlie Hu. The study aimed at benchmarking the available 3G and WiFi networks in the city of West Lafayette (home of Purdue). The study focused on clients using smart phones and required extensive development on Android-based phones. Tools: Java, Android
- Intensive operating system development: Done as part of a graduate course on Operating Systems (taught by Prof. Kihong Park). Assignments consisted of implementing various scheduling policies, mechanisms for inter-process communication and a fully functional virtual memory sub-system. The development was done in an instructional Operating System called XINU. Tools: C/C++
- Compiler development: Built a fully functional language compiler as part of a graduate course on Compilers and Translation Systems. Tools: C/C++

Awards/Honors

- Awarded the prestigious Fulbright Scholarship (for Ph.D.) from Pakistan for the years 2007-2012
- Placed on the Dean's Honor List (requirement being a minimum cumulative GPA of 3.60) during the academic years 2002-2005

Interests

- Photography (www.flickr.com/tarekm)
- Performance cars (Internal Combustion in general)
- High altitude balloons - member of Purdue SEDS (Students for the Exploration and Development of Space) club
- Trekking, traveling

References

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