



Dr. Junaid Haroon Siddiqui

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EXPERIENCE

Lahore University of Management Sciences (LUMS), Pakistan

Assistant Professor of Computer Science (August 2012 – Now)

Research on program analysis and software verification in 27 peer-reviewed publications

Funded by the National Center for Cybersecurity, Higher Education Commission, and LUMS

International collaborations with multiple researchers in Europe and USA

Supervising 5 Ph.D. students and have supervised 12 MS theses and 20 undergraduate projects

Introduced 6 new courses and helped revise Computer Science curriculum

The University of Texas at Austin, USA as *Adjunct Professor* (Summer 2013)

Google Inc., Kirkland, WA, USA as *Software Engineering Intern* (Summer 2011)

Microsoft Corp., Redmond, WA, USA as *Research Intern* (Summer 2010)

Software Industry in Lahore, Pakistan as *Software Engineer/Architect* (April 2000 – June 2007)

EDUCATION

The University of Texas at Austin, USA

Ph.D. (Fall 2007 – Spring 2012)

Software Verification, Validation, and Testing Group

Thesis on systematic constraint-driven analysis using incremental and parallel techniques

Advised by Dr. Sarfraz Khurshid

Cumulative GPA 3.95/4.00

Fulbright scholar

National University of Computer and Emerging Sciences, Lahore, Pakistan

M.S. Computer Science (Fall 2001 – Spring 2003)

Thesis on decentralized key management for large dynamic multicast groups

Gold medal with GPA 3.83/4.00

96th percentile GRE Computer Science

B.S. Computer Science (Spring 1998 – Fall 2001)

Senior Project on PSTN gateway for Voice over IP

Silver medal with cumulative GPA 3.86/4.00 and major GPA 4.00/4.00

Teaching Assistant for six semesters

Winner of four national programming competitions

PUBLICATIONS

- 2018 Efficiently finding minimal failing input in MapReduce programs
Int. Conf. on Software Engineering, ICSE 2018: 177-178
Efficient iterative deepening for bounded exhaustive generation of complex structures
Int. Conf. on Software Engineering, ICSE 2018: 346-347
Towards smaller checkpoints for better intermittent computing
Int. Conf. on Information Processing in Sensor Networks, IPSN 2018: 132-133
Chapter Two - Advances in Software Model Checking
Advances in Computers 108, 2018: 59-89
Search Based Code Generation for Machine Learning Programs
Int. Conf. on Software Engineering Research & Practice, SERP 2018
- 2017 Verifying MPI Java Programs Using Software Model Checking
Int. Symp. on Software Reliability Engineering, ISSRE 2017: 294-304
- 2016 Symbolic Execution of Stored Procedures in Database Management Systems
Int. Conf. on Automated Software Engineering, ASE 2016: 524-535
Effective Partial Order Reduction in Model Checking Database Applications
Int. Conf. on Software Testing, Verification, and Validation, ICST 2016: 146-156
Verification of MPI Java programs using Software Model Checkings
Symp. on Principles and Practice of Parallel Programming, PPOPP 2016: 55:1-55:2
Cross Platform Bug Correlation Using Stack Traces
Int. Conf. on Frontiers of Information Technology, FIT 2016: 199-204
Incremental Checkpointing for Interruptible Computations
Conf. on Embedded Network Sensor Systems, SenSys 2016: 350-351
- 2014 Incremental symbolic execution for automated test suite maintenance
Int. Conf. on Automated Software Engineering, ASE 2014: 271-276
- 2013 Scaling symbolic execution using staged analysis
Journal of Innovations in Systems and Software Engineering, ISSE 9(2) 2013: 119-131
Ranger: Parallel analysis of alloy models by range partitioning
Int. Conf. on Automated Software Engineering, ASE 2013: 147-157
- 2012 Scaling symbolic execution using ranged analysis
Conf. on Systems, Programming, Languages, and Applications, SPLASH 2012: 523-536
Nominated for Best Student Paper Award
Improving systematic constraint-driven analysis using incremental and parallel techniques
Ph.D. dissertation, University of Texas at Austin, 2012
Ranged Model Checking
Software Engineering Notes, 37(6) JPF 2012: 1-5
Lightweight data-flow analysis for execution-driven constraint solving
Int. Conf. on Software Testing, Verification, and Validation, ICST 2012: 91-100
Staged symbolic execution
Symp. on Applied Computing, SAC 2012: 1339-1346
- 2011 Symbolic Alloy
Int. Conf. on Formal Engineering Methods, ICFEM 2011: 340-355
Constraint-based program debugging using data structure repair
Int. Conf. on Software Testing, Verification, and Validation, ICST 2011: 190-199
- 2010 ParSym: Parallel symbolic execution
Int. Conf. on Software Technology and Engineering, ICSTE 2010: 405-409
- 2009 An empirical study of structural constraint solving techniques
Int. Conf. on Formal Engineering Methods, ICFEM 2009: 88-106
Optimizing a structural constraint solver for efficient software checking
Int. Conf. on Automated Software Engineering, ASE 2009: 615-619
PKorat: Parallel generation of structurally complex test inputs
Int. Conf. on Software Testing, Verification, and Validation, ICST 2009: 250-259
Parallel assertion processing using memory snapshots
Workshop on Unique Chips and Systems, UCAS5 2009: 69-75
- 2003 Decentralized key management for large dynamic multicast groups using distributed balanced trees
M.S. Dissertation, National University of Computer and Emerging Sciences, Lahore, Pakistan

TEACHING

Lahore University of Management Sciences, Pakistan

Programming Languages (Graduate) (Fall 2018)
Program Analysis (Graduate) (Spring 2018)
Advanced Programming (Spring 2015, Spring 2016, Summer 2016, Spring 2017, Spring 2018)
Foundations of Computer Systems (Fall 2016, Fall 2017)
Advanced Operating Systems (Graduate) (Spring 2013, Spring 2014, Spring 2015, Spring 2016)
Multicore Computing (Graduate) (Fall 2015)
Reliable Software (Graduate) (Fall 2014)
Algorithms (Spring 2014)
Introduction to Programming (Fall 2013)
Software Testing (Graduate) (Spring 2013)

The University of Texas at Austin, USA

Algorithms (Summer 2013)

Virtual University of Pakistan

Visual Programming (MOOC) (Spring 2013)

National University of Computer and Emerging Sciences, Lahore, Pakistan

Advanced Programming Topics (Spring 2006)
Assembly Language Programming (Spring 2006, Fall 2003, Summer 2002, Fall 2001)
Data Structures (Fall 2005)
Object Oriented Programming (Spring 2004, Summer 2003, Spring 2003)
Operating Systems (Spring 2007, Fall 2005, Spring 2002)

SERVICE

- 2018** Reviewer for SQJ (Software Quality Journal)
Program Committee ISSRE 2018 (Int. Symp. on Software Reliability Engineering)
External Review Panel ASE 2016 (Int. Conf. on Automated Software Engineering)
LUMS Univeristy undergraduate curriculum committee (2014–Now)
LUMS Teaching & Learning committee (2017–Now)
LUMS Computer Science undergraduate curriculum committee (2014–Now)
- 2017** Reviewer for SQJ (Software Quality Journal)
Reviewer for SoSym (Software and Systems Modeling)
Program Committee ICST 2017 (International Conference on Software Testing)
Program Committee INTELLECT 2017
Representative LUMS for national Computer Science curriculum revision committee
Member revision committee for provincial Computer Science school curriculum
- 2016** Reviewer for TSE (IEEE Transactions on Software Engineering)
Program Committee ICST 2016 (International Conference on Software Testing)
External Review Panel ASE 2016 (Int. Conf. on Automated Software Engineering)
- 2015** Program Committee ICST 2015 (International Conference on Software Testing)
Judge ACM Int. Collegiate Programming Contest, Lahore Regional (ICPC)
- 2014** Program Committee ISSRE 2014 (Int. Symp. on Software Reliability Engineering)
Chief Judge ACM Int. Collegiate Programming Contest, Lahore Regional (ICPC)
Judge SoftExpo 2014 Software Exhibition
Judge SOFTEC 2014 Software Competition
- 2013** Reviewer for TSE (IEEE Transactions on Software Engineering).
Program Committee INMIC 2013 (IEEE International Multi-topic Conference)
Judge SOFTEC 2013 Software Competition
- 2012** Reviewer for SQL (Software Quality Journal)
Co-reviewer ASE 2012, FM 2012, FSE 2012, ICST 2012