

Muhammad Sohaib Ayub

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Education:

2015-Present | PhD Computer Science (PHD CS) | CGPA: 3.60/4.00

School of Science and Engineering (SSE), LUMS, Lahore, Pakistan

PhD Thesis: Verification of MPI Java Programs using Software Model Checking

2013-2015 | Masters in Computer Science (MS CS) | CGPA: 3.30/4.00

School of Science and Engineering (SSE), LUMS, Lahore, Pakistan

MS Thesis: Efficiently Finding Minimal Failing Input for Map-Reduce Programs

2008-2012 | Bachelors of Information Technology (BS IT) | CGPA: 3.39/4.00

School of Electrical Engineering and Computer Science (SEECS), NUST, Islamabad, Pakistan

Final Year Project: Design and Development of a Parallel I/O Library

2006-2008 | HSSC (F.Sc. Pre Engineering) | Marks: 802/1100

Govt. Postgraduate Degree College, Okara, Pakistan

2004-2006 | SSC (Matriculation) | Marks: 819/1050

Govt. Sutluj High School, Okara, Pakistan

Research Publications:

- **Muhammad Sohaib Ayub**, Junaid Haroon Siddiqui "Poster: Efficiently Finding Minimal Failing Input in MapReduce Programs" The 40th International Conference on Software Engineering (ICSE'18), Gothenburg, Sweden, on May 27th to June 3rd 2018
- **Muhammad Sohaib Ayub**, Waqas Ur Rehman, Junaid Haroon Siddiqui "Experience Report: Verifying of MPI Java Programs using Software Model Checking" The 28th International Symposium on Software Reliability Engineering (ISSRE'17), Toulouse, France, on October 23rd to 26th, 2017
- Waqas Ur Rehman, **Muhammad Sohaib Ayub**, Junaid Haroon Siddiqui "Verification of MPI Java Programs using Software Model Checking" 21st ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP '16), Barcelona, Spain, on March 12th to 16th, 2016
- Qasim Maqbool, Junaid Zulfikar, **Muhammad Sohaib Ayub**, Aamir Shafi "Virtual TCAM for Data Center Switches" IEEE Conference on Network Function Virtualization and Software Defined Network (NFV-SDN'15), San Francisco, USA, on November 18th, 2015
- Ammar Ahmad Awan, **Muhammad Sohaib Ayub**, Aamir Shafi, Sungyoung Lee "Towards Efficient Support for Parallel I/O in Java HPC" 13th International Conference on Parallel and Distributed Computing, Applications and Technologies (PDCAT'12), Beijing, China, on December, 14th-16th, 2012
- Saif Ur Rehman, Raihan Ur Rasool, **Muhammad Sohaib Ayub**, [et. al.] "Reliable Identification of Counterfeit Medicine Using Camera Equipped Mobile Phones", 8th IEEE International Conference on High-capacity Optical Networks and Enabling Technologies (HONET'11), Riyadh, Kingdom of Saudi Arabia, on December 19th-21st, 2011

Teaching Experience:

• June 2017 to August 2017 | Teaching Assistant | LUMS, Lahore

CS 200: Introduction to Programming (Summer 2017)

• Feb 2015 to June 2015 | Visiting Faculty | National University of Emerging Sciences (FAST-NU), Lahore

CS 205: Operating Systems (Spring 2015)

• Feb 2014 to May 2015 | Teaching Assistant | LUMS, Lahore

CS 510: Design and Analysis of Algorithms (Spring 2015)

CS 582: Distributed Systems (Fall 2014)

CS 310: Algorithms (Spring 2014)

• Feb 2010 to Jun 2012 | Teaching Assistant | SEECS NUST, Islamabad

CS321: Enterprise Network Technologies/Linux (Spring 2012 | BIT-11AB)

CS 251: Design and Development of Algorithms (Spring 2012 | BESE-1AB)

ISE312: Computing Algorithms (Spring 2011 | BIT-11AB)

ISE205: Object Oriented Programming using C++ (Summer 2011 | Summer Section)

ISE103: Computer Fundamentals and C Programming (Fall 2010 | BEE-2AB)

EE241: Digital Logical Design (Fall 2011 | BESE-1AB), (Fall 2010 | BIT-11AB)

EE221: Digital Logical Design (Spring 2012 | BEE-2CD), (Spring 2011 | BEE-1CD)

EE241: Digital Logical Design (Spring 2011 | BICSE-7AB), (Spring 2010 | BICSE-6BC)

Professional/Research Experience:

• Jun 2014 to May 2017 | Residence Fellow | Lahore University of Management Sciences (LUMS), Lahore

Part time housing officer after office hours and during weekends

• **Jan 2013 to August 2013 | Software Development Engineer | xFlow Research Inc., Islamabad**

Software Defined Networking Applications Development

• **Jul 2012 to Jan 2013 | Software Engineer | Techlogix Pakistan (Pvt) Ltd, Islamabad**

Software Support for Lending Module of "Oracle Flexcube Banking Solution" for all the Branches of Askari Bank

• **Jul 2011 to Sep 2011 | Research Internee | High Performance Computing Lab, SEECS NUST, Islamabad**

Profiling of MPJ Express (Implementation of a message passing library in Java, called MPJ)

• **Jul 2010 to Sep 2010 | Research Internee | High Performance Computing Lab, SEECS NUST, Islamabad**

Hands-on development using MPJ Express and Editing of a book on Parallel Computing in Java using LATEX

Workshops/Trainings:

• **May 30-Jun 1, 2018 | Poster Presentation | ICSE 2018, Gothenburg, Sweden**

Poster presentation for my master's thesis in the area of delta debugging of MapReduce programs

• **April 22-23, 2017 | Student Volunteer | UX Pakistan Conference, LUMS, Lahore**

Served as Student Volunteer for successful organization of workshop

• **24-28 Mar, 2015 | Organizer | Cloud Computing Workshop, LUMS, Lahore**

Worked as Teaching Assistant for 5 days long Cloud Computing Workshop

• **2 Jan, 2013 | Presenter | Talk on High Performance Computing, Askari Bank, Islamabad**

Delivered a talk on High Performance Computing at Electronic Technology Division (ETD) of Askari Bank

• **23rd December 2011 | Attendee | IBM Cloud Workshop, NUST SEECS, Islamabad**

Attended one day workshop on cloud computing at RIMMS Seminar Hall, NUST, Islamabad

• **25-26 Oct, 2011 | Instructor & Organizer | Two Days Hands-on Workshop on Web Development, NUST**

Taught "Web Technologies" in workshop organized under HL7 Student Chapter, SEECS NUST, Islamabad

• **30 Aug - 1 Sep, 2010 | Attendee | Three Days Hands-on Workshop on "Programming Multicore Processors", NUST**

Attended workshop at High Performance Computing Lab, SEECS, NUST, Islamabad

• **9-10 Apr, 2011 | Organizer | Two Days Hands-on Workshop on Cloud Computing, NUST, Islamabad**

Worked Support Team Member during the workshop organized by SRG Group, SEECS NUST, Islamabad

Professional Services:

• **Technical Program Committee Member**

International Conference & Workshop on Telecommunication, Computing, Electronics and Control (*ICW-TELKOMNIKA'18*)

International Conference on Electrical Engineering, Computer Science and Informatics (*EECSI'18*)

Saudi Computer Society National Computer Conference (*SCS-NCC'18*)

ACM CHI Conference on Human Factors in Computing Systems (*CHI'18*)

International Conference on Computer Applications & Information Security (*ICCAIS'18*)

International Conference on Computer Applications & Technology (*ICCAT'18, ICCAT'17, ICCAT'15*)

International Symposium on Signal Processing and Information Technology (*ISSPIT'17, ISSPIT'16, ISSPIT'15*)

International Conference on Computer Intelligent Systems & Networking (*ICCISN'17*)

International Conference on Systems and Networks Communications (*ICSNC'17*)

International Conference on Human-Computer Interaction (*INTRACT'17*)

International Conference on Architectural Research & Computer-Aided Design (*ICARCAD'17*)

Journal of Software Defined Radio (*JSDR'16*)

International Conference on Signal Processing and Data Mining (*ISCPDM'15*)

• **Co-Reviewer with Ph.D. Advisor**

International Conference on Software Testing, Verification and Validation (*ICST'16*)

International Symposium on Software Reliability Engineering (*ISSRE'14*)

Community Involvement:

• **01 Feb, 2015 | Volunteer | Open Day, LUMS, Lahore**

Providing guidance to the aspirants to LUMS

• **29 Aug, 2014 | Volunteer | Graduate Orientation, LUMS, Lahore**

Mentoring the fresh graduate students during their orientation

• **07 Apr, 2012 | Volunteer | Funfair for Special People, F9 Park, Islamabad**

Volunteered Funfair for Special People Organized by Pakistan Council for Human Development

Society Memberships:

• **2017 | Member | IEEE International as IEEE Young Professional and Graduate Student Member**

• **2011-2012 | Member | HL7 International**

• **2011-2012 | Executive Member | HL7 Student Chapter, SEECS-NUST, Islamabad**

Awards and Honors achieved:

• **2010 | GPA Based Scholarship | SEECS-NUST, Islamabad**

GPA Based Scholarship holder for GPA 3.82/4.00 in 4th Semester of Bachelor's Degree

• **2008-2012 | Fully Funded Scholarship | National ICT R&D Fund**

Fully Funded Scholarship holder by National ICT R&D Fund for Bachelor's Degree

• **2004 | Quid-e-Azam Boy Scout | Pakistan Boy Scout Association**

Boy Scout during high school and awarded by Governor's certificate

Professional Skills (Tools/Languages):

- **Programming Languages:** Java (J2SE, J2ME & J2EE), C++, C, Android, OpenGL & JOGL, Verilog HDL, Symbian C and QT, MIPS
- **Parallel Paradigms:** MPI, MPJ-Express, Parallel I/O File Systems, CUDA (Very Basic)
- **Programming Tools:** Visual Studio (6.0, 2008, 2010), Turbo C++, NetBeans, JCreator, Eclipse, Tomcat and Glassfish Servers, J2ME wireless Toolkit, Carbide C++
- **Database Management Systems:** MySQL, PL/SQL, Oracle Development Suit (10g, XE), MS Access, MS SQL Server, Postgres SQL, Toad for oracle, SQL Developer
- **Web Technologies:** HTML, PHP, CSS, JavaScript, AJAX, JQuery, C#, ASP.Net
- **Web Tools:** Dreamweaver, WAMP & LAMP Server, .NET Framework, Joomla, WordPress, Moodle
- **Electronics Tools:** ModelSim, MultiSIM, Proteus, NetFilters and IP Tables, SPIM and MARS for MIPS Assembly Language
- **Operating Systems:** Linux (Ubuntu, Fedora, OpenSuse), Windows (Desktop & Server versions)
- **Other Tools:** MS Office Suit, Rational Rose, WinSCP, Samba, MikiTex & Latex, Silk SVN, LDAP and Active Directory Management, Weka, Google Refine, WireShark, MATLAB, GIMP, Oracle's Flexcube Banking Solution, Java Path Finder
- Excellent Programming Skills & Hands on experience of Parallel Computing using Java and Linux Platform

Academic Projects:

Major Projects during Master's Degree:

- Model Checking of Java MPI Programs | Reliable Software
- A Framework for Statistics Collection in SDN-enabled Data Centers | Topics in Internet Research
- Towards Generalizing Data Center Traffic Characteristics | Distributed Systems

Major Projects during Bachelor's Degree:

- Medicine Verification System - J2ME/Android application using QR Code Verification of SMS based remote MySQL database | Distributed Computing
- NUST Ideas Portal using J2EE technologies | Advance Java with Internet Applications
- HL7 Compliant implementation of Personal Health Record (PHR) | Software Project Management
- 2D and 3D game Development (JOGL) | Computer Graphics
- Secure Notepad and Personal Diary | Java
- Learning Management System | C++, Object Oriented C++, Data Structures and Software Engineering
- Integration with LDAP for NUST Instant Notification System (NINS) | Web Technologies II
- Printing Scheduler Website (PhpScheduleIt) | Web Technologies
- Paint Store Inventory System Using Sql Databases & Oracle Databases with Advance Query Optimization Techniques
- Physical Network Topologies simulation using Java and Atarraya | Computer Networks
- RAID implementation and testing its different levels | Computer Architecture
- Net Filters and IP Tables implementation in Linux | Data Communications
- Gate Level Implementation of Combinational and Sequential Logic Circuits | Digital Logic Design
- Managerial, Marketing and Financial Analysis of textile companies | Intro to Management

References:

References will be provided on demand