

Maria Riaz

Google, Inc
California, USA

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Education

PhD Computer Science, 2011 - 2016

GPA: 4.00 / 4.00

North Carolina State University (NCSU), Raleigh, NC, USA

Relevant Courses: Design and analysis of algorithms (A+); Automata, languages and computability theory (A+); Software Engineering (A); Computational applied logic (A+); Experimental Statistics (A+); Service-oriented computing (A+); Database Management Systems (A+)

MS Computer Engineering, 2003 – 2005

GPA: 4.11 / 4.30

Kyung Hee University (KHU), Suwon Campus, South Korea

Relevant Courses: Distributed Systems (A+); Real-time Systems (A+)

B.E. Software Engineering, 1999 – 2003

GPA: 3.93 / 4.00

[Rank: 1st]

National University of Sciences & Technology (NUST), Islamabad, Pakistan

Work

Software Engineer (Aug 2016 - Current)

Google, Inc.

Graduate Research Assistant (2012 - 2016)

NCSU

Research Goal: To discover and refine security requirements patterns and determine their relevance to software projects on the basis of supervised learning from initial set of natural language requirements of those projects.

[Advisor: Prof. Laurie Williams]

Software Engineering Intern (May – Aug 2015)

Google, Inc.

Project: Clustering and analysis of entities based on probability distribution of sequential behavior.

Software Engineering Intern (May - Aug 2014)

Google, Inc.

Project: Testing and analysis of a probabilistic machine learning model to learn and predict behavior from sequences of events.

Teaching (2006 – 2012)

NCSU, NUST, Ghulam Ishaq Khan Institute (GIKI)

Courses: Design & Analysis of Algorithms, Object Oriented Programming, Object Oriented Design Patterns, Distributed Systems, Software Engineering, Introduction to Computing & Programming, Discrete Mathematics, Software Security (Graduate Teaching Assistant at NCSU)

Projects Supervised (Undergraduate level) (2006 – 2011)

GIKI

- Clustering and Analysis of Large Scale Astronomical Data on GIKI Cluster using Hadoop Map-Reduce Framework, in collaboration with Geneva University
- GPS Aided Robotic Laser Designator, in collaboration with Pakistan Air Force (PAF)
- Inertial Navigation System using MEMS Gyroscope, in collaboration with PAF
- Design & Implementation of Context-Aware Multimedia Application

- Design & Implementation of Campus-wide Location-Aware Services
- MERKS – Medical Electronic Recordkeeping system using JSF
- Apostil – A project for sharing annotations on scientific articles using Java

Software Development (2002 - 2014)

- Design and development of a context-aware service lookup mechanism to narrow down the search space by filtering out irrelevant / unavailable services. This project was carried out as part of a middleware solution for context aware computing and used Java and Jini APIs.
[Ubiquitous Computing Lab, KHU (South Korea)] 2003-2005
- Involved in design, development and testing of *DIAMOnDS* (Distributed Agents for Mobile and Dynamic Services), a distributed mobile agents platform developed using Java and Jini APIs.
[In collaboration between CERN (Switzerland), Caltech (USA), NUST (Pakistan)] 2002-2003
- Development of Eclipse plugins to support tasks such as feature updates from local or remote site, an integrated application to utilize features of Data tools project and an explorer for remotely interacting with SRB file system.
[Software Consultant at EPFL (Switzerland)] 2007-2008
- Mobile application development such as: location-based reminders service using Android SDK; surrogate-based solution for accessing resource-heavy services from handheld devices such as PDAs, Smart Phones etc using IBM J9 framework.
[Ubiquitous Computing Lab, KHU (South Korea), NCSU (USA)] 2004, 2012
- Web application development such as: Privacy risk assessment model for Facebook information items including personal information and posts. Integrated the model in a Facebook application to extract privacy settings of users' posts and identify associated privacy risk. *[NUST (Pakistan)]* 2011

Skill Set

Software Engineering: Empirical Software Engineering, Pair Programming, Test-Driven Development, Planning and Estimation, Refactoring, Risk Analysis

Languages: Java [J2SE, J2ME, J2EE, JUnit, RMI, Networking, Database Connectivity, Android], JavaScript, C++, Go, R, PHP, Python

Frameworks: Eclipse, Spring, SAS, Hadoop, Jini, JBoss Application Server, JBuilder

Software Tools: MySQL, Oracle, Jena, Protege, Stanford NLP, Weka, R, iPython Notebook, Rational Rose, IBM J9 Platform, IBM TSpaces, JavaSpaces, Subclipse, FindBugs, Bugzilla, EclEmma, Ant

Leadership Experience

- Participated in Graduate Leadership Development Series (GLDS 2013, NCSU). Initiated linkages with university administration to help graduate students in finding and applying for alternate funding opportunities (fellowships and grants). Developed an informative website as part of the initiative.
- Coordinated organization of three successful All-Pakistan Youth Leadership Symposiums in the capacity of the Advisor for Women Engineering Society [WES], GIKI Chapter.
- Initiated linkages with Geneva University (Switzerland), EPFL (Switzerland) and Pakistan Air Force for Senior Design Projects and student internship opportunities while at GIKI.
- Primary coordinator for the review of Software Engineering and Computer Science undergraduate curriculum at GIKI.

- Participated in the National ICT Outreach Scholarship Program (Pakistan) to prepare students from remote areas for admission at top-tier engineering universities.
- Participated as a Judge in Software Competitions at top-tier engineering universities in Pakistan including GIKI and NUST.

Representative Publications

Books [Masters' Thesis published as a monologue - ISBN 978-3-639-24984-2]

Context Aware Service Delivery: Look-up and Access Control Issues by *Maria Riaz*

Research Papers

Maria Riaz, Jonathan Stallings, Munindar P. Singh, John Slankas, Laurie Williams, "*DIGS - A Framework for Discovering Goals for Security Requirements Engineering*", Empirical Software Engineering and Measurement (ESEM), Sep **2016**, Ciudad Real, Spain

Maria Riaz, Sarah Elder, and Laurie Williams, "*Systematically Developing Prevention, Detection, and Response Patterns for Security Requirements*", 3rd International Workshop on Evolving Security and Privacy Requirements Engineering (ESPRE), Sep **2016**, Beijing, China

Hanan Hibshi, Travis D. Breaux, **Maria Riaz**, and Laurie Williams, "*A Grounded Analysis of Experts' Decision-making During Security Assessments*", Journal of Cyber Security, Oct **2016**

Maria Riaz, Travis Breaux, Laurie Williams, "*How Have We Evaluated Software Pattern Application? A Systematic Mapping Study of Research Design Practices*", Information and Software Technology (IST) Journal, Vol 65, pp 14-38, September **2015**.

Maria Riaz, John Slankas, Jason King, Laurie Williams. "*Using Templates to Elicit Implied Security Requirements from Functional Requirements - A Controlled Experiment*," Empirical Software Engineering and Measurement (ESEM), September 18-19, **2014**, Torino, Italy

Maria Riaz, Jason King, John Slankas, Laurie Williams. "*Hidden in Plain Sight: Automatically Identifying Security Requirements from Natural Language Artifacts*," Requirements Engineering (RE), August 25-29, **2014**, Karlskrona, Sweden

Hanan Hibshi, Travis Breaux, **Maria Riaz**, Laurie Williams, "*Towards a Framework to Measure Security Expertise in Requirements Analysis*", First International Workshop on Evolving Security and Privacy Requirements Engineering (ESPRE 2014), August 25, **2014**, Karlskrona, Sweden

Maria Riaz, Laurie Williams. "*Security Requirements Patterns: Understanding the Science Behind the Art of Pattern Writing*," Second International Workshop on Requirements Patterns, **RePa'12**, September 24, **2012**, Chicago, USA

Jeremy C. Maxwell, Annie I. Anton, Peter Swire, **Maria Riaz**, Christopher M. McCraw. "*A Legal Cross-References Taxonomy for Reasoning About Compliance*," **Requirements Engineering Journal**, 17(2), pp 99-115, Springer-Verlag, **2012**

Maria Riaz, Saad Liaquat Kiani, Sungyoung Lee, Young-Koo Lee, "*Incorporating Semantics-based Search and Policy-based Access Control Mechanism in Context Service Delivery*", In: **IEEE ACIS International Conference on Computer and Information Science (ICIS 2005)**, South Korea

Maria Riaz, Saad Liaquat Kiani, Anjum Shehzad, Sungyoung Lee, “*On Communication Optimization in Grid Access Middleware for Handheld Devices*”, In: International Scientific-Practical Conference 'Communication-2004'

Ngo, H.Q., Anjum Shehzad, Saad Liaquat Kiani, **Maria Riaz**, Sungyoung Lee, “Developing Context-Aware Ubiquitous Computing Systems with a Unified Middleware Framework”, In: Proceedings of Embedded and Ubiquitous Computing: EUC 2004, LNCS Volume 3207, , pp. 672 – 681, Springer-Verlag, 2004

Aamir Shafi, **Maria Riaz**, Saad Liaquat Kiani, Anjum Shehzad, Umer Farooq, Arshad Ali, Iosif Legrand, Harvey Newman, “*DIAMOnDS - DIstributed Agents for MOBILE & Dynamic Services*” , In: Computing in High Energy Physics 2003 (**CHEP'03**), La Jola, California

Posters

“*Discovering Implied Goals for Security Requirements Engineering*”, presented at Science of Security Community Meeting, NCSU, Raleigh, NC, Feb 2016

“*Identifying the Implied Security Requirements*”, presented at Science of Security Community Meeting, NCSU, Raleigh, NC, Oct 2015

“*Reasoning about Security Requirements*”, presented at Science of Security Community Meeting, NCSU, Raleigh, NC, Jan 2015

“*Automatically Identifying Security Requirements from Existing Functional Requirements*”, presented at Hot-SoS, Raleigh, NC, April 2014

“*Improving the Usability of Security Requirements by Software Developers through Empirical Studies and Analysis*”, presented at CRA-W Graduate Cohort, Boston, MA April 2013

Poster presentation at Schlumberger FFTF forum, Houston, TX, December 2012

Awards & Achievements

- Faculty For The Future (FFTF) fellowship, Schlumberger Foundation, 2011-2014
- Consistent **Excellent** rating in annual performance assessment at GIKI, 2006-2011
- Scholarship award for Masters and Bachelor degrees, 2002-2005
- Recipient of **President's Gold Medal** for Best Academic Performance in Undergraduate, 2003
- Recipient of **Rector's Gold Medal** for Best Undergraduate Project, 2003
- 1st Position in On-spot Speed programming, Java Language, BACSAP 2003, All-Pakistan IT competition held at Bahria University, Islamabad, Pakistan.
- 1st Position in Software Exhibition, Networking Category, BACSAP 2003, All-Pakistan IT competition held at Bahria University, Islamabad, Pakistan.
- Appointed as Head Girl (female student body president) in High School, 1998-1999.