

Dr. Zainab Masood

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Profile Summary

- More than **4 years** of experience in conducting research across different topics in field of Software Engineering while working as a **postdoctoral researcher, research associate, and assistant**
- **3 years** of teaching experience under roles such as a **professional teaching fellow and graduate teaching assistant** supporting both teaching staff and under-graduate and graduate students in teaching and course administration
- **9 years** professional experience of working in **software development** and service provider **companies** developing software applications and solutions, management information systems, information technologies as a **software tester and quality expert**

Education

Doctor of Philosophy in Software Engineering

University of Auckland, Auckland, New Zealand (Nov 2016- Mar 2021)

Master of Software Engineering Studies

University of Auckland, Auckland, New Zealand (2012-2013)

Bachelor of Software Engineering

Fatima Jinnah University, Pakistan (2001-2004)

Research Experience

Postdoctoral Research Fellow – **University of Victoria, Canada** (May 21 – Present)



- **Researcher @Software Engineering Global Interaction Lab (SEGAL)** in the **Department of Computer Science**
- Conducting empirical research on Agile and DevOps teams, Impact of Covid-19 on Software development practices, professionals, teams, and companies
- Collecting data through interviews, surveys, focus groups, analyzing and reporting findings using quantitative and qualitative research methodologies
- Publications submitted to IEEE Software, Information and Software Technology (IST) under review and others in progress

Research Associate – University of Victoria, Canada (Sep 2020 – Dec 2020)

- Conducting research on tasks desirability of software developers
- Collecting data through interviews, analyzing and reporting findings using qualitative research methodology
- Publications submitted to Information and Software Technology (IST), 2021 and under review

Research Assistant – University of Auckland (Nov 2016 – Nov 2019)



- *Researcher @Human Aspects of Software Engineering Lab (HASEL) and Software Engineering Processes, Tools, and Applications (SEPTA) research in the **Department of Electrical, Computer, and Software Engineering***
- Conducting research on multiple projects such as Teaching Agile Software Methodologies to University Students, Task Allocation Strategies in Software Teams, and Serious Games for Supporting 21st Century Skills
- Analyzing and reporting findings using different quantitative and qualitative research methodologies such as Grounded Theory, Thematic Analysis, Mixed Methods etc.
- Conducting Systematic Literature Review (SLR) on topics such as 21st century skills using serious games, teaching Agile software development in tertiary education
- Writing academic journal articles and conference papers for publications in premier software engineering venues
- Using Software tools like NVivo, R and SPSS for quantitative and qualitative analysis

Teaching Experience

Professional Teaching Fellow – University of Auckland (Feb 20 – Nov 20)



SOFTENG754 Advanced Software Requirements Engineering (Semester 1)

- Advanced software engineering course focusing on techniques for requirements analysis and requirements engineering (RE) of software systems
- Key Topics covered: requirements elicitation, analysis, specification, validation, verification, user experience design, test-driven development, continuous integration, and behavior-driven development
- Delivering lectures in online mode to a class of 79 students
- Preparing lectures, tests, assignments, designing lab exercises
- Assisting teaching assistants for grading of students' scripts, individual reports, team projects, assignments, and other deliverables
- Providing feedback to students on research essays
- Answering students' queries through emails and Piazza (External Online learning system)

SOFTENG761 Advanced Agile and Lean Software Development (Semester 2)

- Advanced software engineering course covering key Agile and Lean Software Development methodologies
- Key Topics covered: Agile Values, Principles, Benefits & Challenges, Rise & Evolution of Agile, Agile Requirements & Planning, Agile & Lean Methods such as Scrum, Extreme Programming, Kanban
- Delivering lectures in a hybrid mode (on campus & online) to a class of 80 students
- Preparing lectures, material, tests, research component of the courses, designing lab exercises

- Assisting teaching assistants for grading of students' scripts, individual reports, team projects, assignments, and other deliverables
- Providing feedback to students on research essays
- Answering students' queries through emails and Piazza (External Online learning system)

Graduate Teaching Assistant – *University of Auckland* (July 2017 – Nov 2019)

- Assisting instructors and students during the execution of the courses such as SOFTENG754 Software Requirement Engineering, SOFTENG761 Agile and Lean Software Development, SOFTENG751 High Performance Computing
- Marking students' scripts, individual reports, team projects, assignments, and other deliverables
- Providing feedback to students against their assignments, presentations, and course projects
- Preparing the research component of the course SOFTENG761 Agile and Lean Software Development under the supervision of the course coordinator
- Invigilating quizzes and examinations
- Answering students' queries through emails and Piazza (External Online learning system)

Publications

- **Zainab Masood**, Rashina Hoda, and Kelly Blincoe, What Drives and Sustains Self-Assignment in Agile Teams In **IEEE Transactions on Software Engineering**, 2021
- **Zainab Masood**, Rashina Hoda, and Kelly Blincoe, Real World Scrum A Grounded Theory of Variations in Practice In **IEEE Transactions on Software Engineering**, 2020 [doi.org/10.1109/TSE.2020.3025317]
- **Zainab Masood**, Rashina Hoda, and Kelly Blincoe, How agile teams make self-assignment work: a grounded theory study in **Empirical Software Engineering**, 25(6), pp.4962-5005, 2020 [doi.org/10.1007/s10664-020-09876-x]
- **Zainab Masood**, Rashina Hoda, and Kelly Blincoe, Adapting agile practices in university contexts, in **Journal of Systems and Software**, 144, pp.501-510, 2018 [doi.org/10.1016/j.jss.2018.07.011]
- **Zainab Masood**, Rashina Hoda, Kelly Blincoe, *Exploring Workflow Mechanisms and Task Allocation Strategies in Agile Software Teams*, **Agile Processes in Software Engineering and Extreme Programming**, Springer, pp. 267-273, 2017 [doi.org/10.1007/978-3-319-57633-6_19]
- **Zainab Masood**, Rashina Hoda, Kelly Blincoe, *Motivation for Self-Assignment: Factors Agile Developers Consider*, **Cooperative and Human Aspects of Software Engineering (CHASE)**, Proceedings of the International Conference on Software Engineering (ICSE), Buenos Aires, 2017 [10.1109/CHASE.2017.18]
- **Zainab Masood**, *Self-Assignment: Task Allocation Practice in Agile Software Development*. In International Conference on Agile Software Development, **Agile Processes in Software Engineering and Extreme Programming**, Springer, 2017
- **Zainab Masood** and Rashina Hoda, Math Tutor: An Interactive Android-Based Numeracy Application for Primary Education. In Proceedings of the Fifteenth **Australasian User Interface Conference (AUIC2014)**, Auckland, January 2014 [hdl.handle.net/2292/37228]

Publications: In Progress

- **Zainab Masood**, Daniella Damian, and, Kelly Blincoe, *How NZ Software Companies Are Adapting Work Settings with Changing Times*, submitted to *IEEE Software*, 2021 [Under Review]
- **Zainab Masood**, Rashina Hoda, Kelly Blincoe, and Daniella Damian, *Like, Dislike, or Just Do It? How Developers Approach Software Development Tasks* submitted to *Information and Software Technology (IST)*, 2021 [Under Review]
- Paramvir Singh, Rashina Hoda, and **Zainab Masood**, *Teaching Agile Software Development in Higher Education: A Systematic Literature Review* submitted to *ACM Transactions on Computing Education*, 2020 [Under Revisions]
- Kashumi Madampe, **Zainab Masood**, and Rashina Hoda, *Role of Scrum Master in University Contexts* submitted to *Journal of Systems and Software (JSS)*, 2021 [Under Review]

Conference Talks: Journal First Track

- **Zainab Masood**, International Conference on Software Engineering (**ICSE**), 2021: *Real World Scrum A Grounded Theory of Variations in Practice (TSE)*.
- **Zainab Masood**, The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (**ESEC/FSE**), 2021: *How Agile Teams Make Self-Assignment Work: A Grounded Theory Study (EMSE)*.

Service

- Reviewer, *IEEE Transactions on Software Engineering (TSE)*, 2021
- Reviewer, *Empirical Software Engineering (EMSE)*, 2020
- Reviewer, *IEEE Transactions on Education (TE)*, 2020
- Reviewer, *Information and Software Technology (IST)*, 2021
- Reviewer, *Journal of Systems and Software (JSS)*, 2019, 2020, 2021
- Reviewer, *PLOS One*, 2021
- Program Committee (PC) member, the Cooperative and Human Aspects of Software Engineering (CHASE), a co-located conference at ICSE, 2021
- Program Committee (PC) member, Workshop on Software Health in Projects, Ecosystems and Communities (SoHeal2021), 2021

Industrial Experience

Quality Management Group Consultant – *EnterpriseDB* (Aug 2013 – Jan 2017)

Nature of Product: *Database Management System*



- Creating and maintaining technical documentation for clients and stakeholders
- Contributing to business and systems requirements analysis, design, and usability of new features
- Participating in special initiatives and projects as required
- Working closely with the development team to analyze, debug, and resolve any issues
- Writing, executing, and managing manual and automated tests for all aspects of the solution set throughout the SDLC

- Authoring test documentation including test suites, test conditions, and test cases
- Performing test activities such as creating and maintaining test data, recording and reporting on outcomes of testing activities to stakeholders, recording and managing defects found during testing using Redmine, investigating and escalating production issues reported to support team after releases
- Performing a range of testing types including exploratory, regression, integration, acceptance, pre-release testing in pre-production environment and production verification on supported flavors of multiple platforms (Windows, MAC, Linux)
- Performing testing activities on a range of modules: Database drivers i.e. EDB-Connectors (JDBC, ODBC, OCI, .Net, ECPG), Slony Replication, PostgresPlus Advanced Server and components Bitrock Installers and rpms for bi-annual releases and customized builds
- Writing and running automated tests using tools such as NUnit, JUnit, and in-house C-based testing frameworks
- Measuring test coverage using tools gcov, dotCover, ECL Emma
- Co-authoring technical documentation and release notes for different releases as module owner

Senior Software Quality Assurance Engineer – Medix (Oct 2009 – Jul 2012)



Nature of Product: *Hospital Management System*

- Performing functional testing, usability testing, smoke testing and regression testing on Medix Web, Mobile and Desktop applications
- Performing test activities on different scales of work from bug fixes, BAU tasks, through to projects
- Performing testing activities on a range of technologies including Webpages, web forms, Windows Plugins, Mobile applications
- Building and maintaining regression test suites for manual testing
- Developing automated tests for repeated tasks
- Working closely with the development team to analyze, debug and resolve any issues
- Contributing to business and systems requirements analysis, design, and usability of new features
- Participating in special initiatives and projects as required
- Investigating, troubleshooting and creating technical solutions for the client reported issues
- Creating and maintaining technical documentation for clients and stakeholders
- Writing and running manual tests using SpiraTest
- Writing and running automated tests using QTP and Selenium in test environments
- Conducting performance testing using SilkPerformer

Quality Assurance Engineer – Ultimus (Mar-2008 - Oct-2008)



Nature of Product: *Business Process Management BPM*

- Working closely with the development team to report, reproduce, and resolve any issues
- Writing, executing and managing manual tests for all aspects of the solution set throughout the SDLC
- Authoring test documentation including test reports, test conditions, and test cases
- Performing test activities such as creating and maintaining test data, recording and reporting on outcomes
- Performing a range of testing types for both functional and non-functional requirements including exploratory, regression, integration, acceptance, pre-release testing on pre- and post-production environments certifying multiple versions of Windows
- Writing and running manual tests using Bugzilla

- Maintaining technical documentation and release notes for different releases with the documentation expert

Quality Assurance Analyst – National Database & Registration Authority (NADRA)

(Jun 2005 – Sep 2007)



Nature of Product/Projects: *Multiple MIS Projects such as Web Applications and Portals, ERP Systems, Mobile Applications*

- Worked on the implementation of generic and specific goals and practices to increase the organization's level of process maturity per the Capability Maturity Model Integration (CMMI) Level II
- Worked on process standardization and improvement using ISO 9001:2000 guidelines
- Conducted internal audits identifying the non-conformances and corrective actions
- Conducted process and product reviews, evaluating the non-conformances and recommending improvements
- Documenting Test requirements, scenarios, cases and reporting and tracking defects for different projects
- Documenting quality assurance processes, procedures and preparing artifacts for teams to follow
- Preparing user guides, release notes and other technical documentation for different projects
- Writing and executing manual and automated tests for the solution set throughout the SDLC
- Authoring test documentation including test suites, test conditions, and test cases
- Performing a range of testing types including exploratory, regression, integration, acceptance, pre-release testing in pre-production environment and production verification on supported flavors of multiple platforms (Windows, MAC, Linux)
- Co-authoring technical documentation and release notes for different releases as module owner

Professional Trainings and Courses

- Completed **Teaching Catalyst Program** designed for lecturers at the University of Auckland.
- Completed mandatory training for **Graduate Teaching Assistants** at the University of Auckland
- Training on **Doctoral Skills** such as Literature Review - Getting Started, writing paper for publication, writing thesis proposal, using word and Latex for formatting the thesis, presenting research with academic Posters, presenting research at seminars, events and conferences at The University of Auckland, New Zealand
- Developing **Android Applications**, 3 days training session
- 2 days ISO 9001:2000 Internal Auditing Training offered by Moody International (Pvt.) Limited
- 1 day in-house introductory session on implementation of CMMI Level II Process Areas
- Training of ISO 9001-2000 for ISO certification conducted in NADRA Headquarters
- Attended the course of Certified Software Quality Professional (CSQP) offered in collaboration of PIQC and NUST

Achievements

- Multiple Research Writing, Faculty, and Department Awards at the University of Auckland, New Zealand

- Asian Development Bank (ADB) - Japan Scholarship Program (JSP) Award [Fully Funded, 2012-2013] for Master's degree at the University of Auckland, New Zealand
- Awarded the Cash Prize twice while working in EnterpriseDB for best performer of the quarter
- Employee of the month multiple times during service in Fauji Foundation (Medix)
- Promoted from Quality Assurance Engineer to Senior Quality Assurance Engineer in Fauji Foundation (Medix) within one year of service
- Selected for a prestigious week training program from a pool of 10 team members in NADRA