Muhammad Raees

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Summary

PhD student with a research focus on Human-Computer Interaction and Data Analytics. Conducting human-centered design research research using quantitative and qualitative methods. Strong foundation in statistical analysis, software development, and proficiency in programming (Python, R, SQL). I am well-positioned to drive impact and apply my problem-solving skills in a dynamic and collaborative environment.

Education

Rochester Institute of Technology
Rochester, NY

PhD in Computing & Information Sciences (Concentration: Human-Computer Interaction) – CGPA *4.0/4.0*   *August 2022 – Present*

- **Courses:** Visual Analytics, Big Data, Human-AI, Software Engineering, Research, Quantitative, & Cyberinfrastructure Foundations
- Graduate Research Assistant at Sappi-RIT Digital Innovation Lab.
- Participating in the AWARE-AI NSF Research Traineeship (NRT) Program

Bahria University
Islamabad, Pakistan

MS in Software Engineering – Graduated with Gold Medal – CGPA *4.0/4.0*   *February 2015 - April 2017*

- **Courses:** Data Mining/Warehousing, Usability Engineering, Distributed Systems, Research Methods, Software Quality

Mirpur University of Science and Technology
Mirpur, Pakistan

BS in Software Engineering – Graduated with Distinction – CGPA *3.87/4.0*   *Octobor 2009 - January 2014*

- **Courses in:** Programming, Mathematics, Computer Architecture, Software Design and Development

Skills

Programming	Python*** (Pandas, Plotly, Scikit-learn ...), JavaScript**, SQL**, R**, C++**, PHP**
Technologies	Shell (Bash)**, Git**, Flask**, React**, Big Query**, MySQL**, Selenium**, Tableau**, Dash**, HighCharts**, Power BI*
Research	Prototyping***, Usability Testing***, A/B Testing***, Thematic Analysis**, (Semi-Structured) Interview (Design)**, Experimental Design**, Survey Design**, Participatory Design*, Affinity Diagraming*
Domains	Visualization (Analytics)***, Data Science**, Statistical Modeling**, Machine Learning**, Cloud (AWS, GCP)**
Misc.	Information Extraction and Automation**, Teamwork**, Documentation**, GIS Visualization*
	*=Familiar; **=Experienced; ***=Proficient*

Work Experience

Rochester Institute of Technology
Rochester, NY

Graduate Research Assistant (Composite role with Sappi Digital Transformation)   *2022 – Present*

- Conduct HCI and human-centered design research on visual analytics tools to improve user experience in business settings.
- Design & evaluate research studies with users employing various methods (e.g., surveys, interviews, prototypes, quantitative experiments).
- Disseminate technical papers and plans of execution in collaboration with industry partners.
- **Skills:** Prototyping, Data Analysis, Collaboration, Research Writing, Communication.

Mirpur University of Science and Technology
Mirpur, Pakistan

Lecturer   *2017 – 2022*

- Designed and improved course development in Programming, Human-Computer Interaction, Web Design, & Machine Learning
- Supervised technical and research projects mentoring students; fostered a learning culture through hands-on practical training.
- Managed and improved several organizational processes including space/time management, accreditation, and quantity control.
- **Skills:** Teaching, Supervision, Research, Management, Curriculum Development

Aurora Solutions
Islamabad, Pakistan

Software Engineer   *2014 – 2017*

- Researched methodologies and evaluations to help measure the attention span deficit using Psychometrics.
- Designed wireframes and design specifications for a diagnostic web application (QbCheck) aimed at evaluating ADHD in school children.
- Worked with QbTech Teams (including engineers and cross-functional partners) to launch the QbCheck platform for ADHD testing.
- **Skills:** JavaScript, Databases, CI/CD, Collaboration, Psychoanalysis, Web Development.

Publications

Muhammad Raees, Inge Meijerink, Ioanna Lykourentzou, Vassilis-Javed Khan, Konstantinos Papangelis (2024). "From explainable to interactive AI: A literature review on current trends in human-AI interaction". International Journal of Human-Computer Studies. P. 103301

KA Khan, SH Dar, S Fazilat, **M Raees**, A Ahmed, AA Mir (2022). "An intelligent sentiment analysis system based on recent trends in machine learning". Science International. Pp. 217–224

M Raees, KM Abassi, TA Khan, A Afzal, S Fazilat, I Ahmed (2021). "Context-Aware Services Using MANETs for Long-Distance Vehicular Systems: A Cognitive Agent-Based Model". Scientific Programming

M Raees (2020). "Study of software quality improvement through reliability metrics models and root cause analysis program". International Journal of Computer Engineering and Information Technology. Pp. 42–47

SH Dar, J Ahmed, **M Raees** (2016). "Characterization of flexible wearable antenna based on rubber substrate". Int. J. Adv. Comput. Sci. Appl. IJACSA

F Riaz, SI Shah, **M Raees**, I Shafi (2013). "Lateral Pre-crash sensing and avoidance in emotion enabled cognitive agent-based vehicle-2-vehicle communication system.". International Journal of Communication Networks and Information Security

Conference Proceedings

M Raees, VJ Javed, K Papangelis (2023). "Four Challenges for IML Designers: Lessons of an Interactive Customer Segmentation Prototype in a Global Manufacturing Company". Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems, Hamburg, Germany

S Manzoor, N Ali, **M Raees**, KA Khan, A Ahmed, MU Ayub (2022). "Ancient coin classification based on recent trends of deep learning". Proceedings of VIPERC2022: International Virtual Conference on Visual Pattern Extraction and Recognition for Cultural Heritage Understanding

Honors and Awards

2022	**Award,** Graduate Research Scholarship for PhD	*RIT*
2021	**Award,** Two scholarship Awards for Ph.D.	*HEC, Pakistan*
2017	**Summa Cum Laude,** Gold-Medallist in Masters	*BUI, Pakistan*
2016	**Graduate Award,** Masters Tuition Scholarship	*BUI, Pakistan*
2011	**Undergraduate Award,** Bachelors Tuition Scholarship	*MUST, Pakistan*

Service

2024	**Technical Mentor,** RIT ASA DataFest
2024	**Reviewer: Technical Papers,** CHI, EICS, CUI, DIS
2023	**Reviewer,** CHI, CHIPLAY, CSCW, ICIS, VIS

Talks and Presentations

May 2023	**Presentation,** Research Potential Talk	*Rochester, NY*
Apr 2023	**Poster Presentation,** CHI'23 Late Breaking Work	*Hamburg, Germany*

Training and Teachings

Training	Faculty Development Master Trainer, Machine Learning on Google Cloud, IBM Data Science, Google Data Analytics, Google Business Intelligence, Data Visualization with Tableau, Microsoft Power BI Data Analyst, Google UX Design, Humanities Responsible Conduct of Research.
Teaching	Machine Learning, Programming, Data Science, Web Development (PHP, JavaScript), Human-Computer Interaction.
Writing	Technical Writing at Medium, Course Book - "Web Design" for an open university.

Additional Experience

Hildreth Foundation *Remote, USA*

Data Science Fellow - Volunteer *2024 – Present*

- Automated data retrieval and pre-processing using AWS lambda functions, cloud-watch, and RDS.
- Enhanced visualization and dashboards to support decision-making with student-centered and equity-driven policy analysis of student debt.
- **Skills:** Dashboarding, AWS Automation, Tableau, Visualization.

Data Kind *Remote, USA*

Data Expert - Volunteer *2023 – 2024*

- Implemented and Deployed segmentation models with 3 other interns using Python, Plotly, and Pandas that allow the partner organization to tailor their service offerings.
- Addressed financial inclusion and economic challenges of underprivileged learners by optimizing training programs based on data analysis.
- **Skills:** Dashboarding, Data Analysis, Feature Engineering, Model Deployment, Git.