

# Muhammad Raees

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## Summary

A PhD student with a research focus on Data Analytics and Human-Computer Interaction. Conducting user experience research on visual prototypes through quantitative and qualitative methods. Strong foundation in software development, analysis methods, and proficiency in programming (Python, R, and 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

PhD in Computing & Information Sciences – CGPA 4.0/4.0

Rochester, NY  
August 2022 – Present

- **Courses:** Visual Analytics, Software Engineering, Quantitative Foundations, Cyberinfrastructure, Research Methods

### Bahria University

MS in Software Engineering – Graduated with Gold Medal – CGPA 4.0/4.0

Islamabad, Pakistan  
February 2015 - April 2017

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

### Mirpur University of Science and Technology

BS in Software Engineering – Graduated with Distinction – CGPA 3.87/4.0

Mirpur, Pakistan  
October 2009 - January 2014

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

## Skills

<b>Technical</b>	Statistical Modeling, Data Science, Machine Learning, Visualization, Experiment Design.
<b>Programming</b>	Python (Pandas, GeoPandas, NumPy, Scikit-learn. etc.), R, PHP, C++, JavaScript, SQL.
<b>Tools</b>	Linux, Shell (Bash/Zsh), Google Cloud, Vertex AI, Big Query, SQL Server, PostgreSQL, Selenium, Tableau, Plotly Dash, HighCharts, Power BI, Docker.
<b>Research</b>	A/B Testing, Whiteboarding, Thematic Analysis, Participatory Design, Survey, Prototyping.
<b>Misc.</b>	Teamwork, Documentation, Information Extraction and Automation, Content Writing, GIS Visualization.

## Work Experience

### Rochester Institute of Technology

Research Assistant

Rochester, NY  
2022 – Present

- In a composite role with Sappi Digital Transformation, working with qualitative and quantitative methods for analytics, prototyping, and user experience research. Conducted studies with a diverse user base on AI-enabled prototypes designed to support sales users in work contexts.
- Improving on integration of work prototypes with Google Cloud services for effective data access/maintenance and user testing.
- **Skills:** Python, Plotly Dash, Pandas, Google Cloud Platform, Git, Collaboration, Time Management, Communication.

### Mirpur University of Science and Technology

Lecturer

Mirpur, Pakistan  
2017 – 2022

- Engaged in higher education teaching, research, student mentorship, and departmental management, fostering a learning culture through hands-on practical experiments and supervision.
- Designed and developed curriculum for several in-demand courses in programming, web development, and human-computer interaction.
- **Skills:** Teaching, Supervision, Research, Management, Curriculum Development, Time Management.

### Aurora Solutions

Software Engineer

Islamabad, Pakistan  
2014 – 2017

- Worked with QbTech to launch the QbCheck platform for attention span ADHD testing employing cutting-edge web technologies.
- Collaborated with clients and product teams to deliver ADHD testing tools. Personalized client applications for various age-group users.
- **Skills:** Databases, Scripting, CI/CD, Collaboration, Web Development.

### Data Kind

Data Expert - Volunteer

Remote, USA  
2023 – 2024

- Volunteer data science collaboration with DataKind, addressing financial inclusion challenges, optimizing economic opportunities, and training for financial practices for underprivileged learners.
- Devised product recommendations and models for better product offerings to the target audience.
- **Skills:** Dashboarding, Data Analysis, Feature Engineering, Model Deployment, Git.

# Publications

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## CONFERENCE PROCEEDINGS

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

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

## JOURNAL ARTICLES

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

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

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

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

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

# Achievements

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- 2022 **Award**, Graduate Research Scholarship for PhD
- 2021 **Winner**, Two scholarship Awards for Ph.D.
- 2017 **Summa Cum Laude**, Gold-Medallist in Masters
- 2016 **Winner**, Merit-based Scholarship in Masters

# Miscellaneous

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<b>Training</b>	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.
<b>Teaching</b>	Machine Learning and Programming (Python with Data Science), Web Development (PHP, SQL, JavaScript, ASP.NET), Human-Computer Interaction.
<b>Writing</b>	Technical Writing at Medium, Course Book - "Web Design" for an open university.
<b>Other</b>	Reviewed manuscripts for ACM CHI, CHIPlay, EICS, DIS, ICIS, and others.

References available upon request.