

MUHAMMAD RAEES

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RESEARCH INTERESTS

My research interests lie at the intersection of Human-Computer Interaction, Human-Centered AI, and Socio-technical Systems. I apply cognitive theories to design interaction and reason about how people use AI systems. My research explores improving people's reliance on AI while helping them retain agency over it. My work has been published in top HCI venues, including CHI, IJHCS, UMAP, ASSETS, and HCII.

EDUCATION

- **PhD in Computing & Information Sciences** Aug 2022 - Present (All but dissertation)
Rochester Institute of Technology (RIT), Rochester, NY CGPA: 4.00/4.00
 - **Dissertation:** Understanding and Designing Human-Centered AI Interactions for Non-Expert Users
 - *Advisor:* Konstantinos Papangelis. *Committee:* Ioanna Lykourantzou, Garreth Tigwell, David Schwartz
 - AWARE-AI NSF Research Trainee (NRT)
- **Master of Science in Software Engineering** 2015 - 2017
Bahria University Islamabad (BUIC), Pakistan CGPA: 4.00/4.00 - Summa Cum Laude
 - Courses: Usability Engineering, Research Methods, Data Mining/Warehousing
- **Bachelor of Science in Software Engineering** 2009 - 2014
Mirpur University of Science and Technology (MUST), Pakistan CGPA: 3.87/4.00 - Distinction

EXPERIENCE

- **Graduate Research Assistant** Aug 2022 - Present
Rochester Institute of Technology Rochester, NY
 - **Designed and led** mixed-methods research studies in human-centered AI interaction with 100+ participants.
 - Collaborated with stakeholders across **academia and industry** to address business and research problems.
 - Published peer-reviewed research in reputed HCI venues, with multiple manuscripts under review.
 - **Co-instructed** undergraduate and graduate-level courses in game design and development (2026-2027).
- **Lecturer** 2019 - 2022
Mirpur University of Science and Technology Pakistan
 - **Developed and taught** courses for undergraduate and graduate-level programs.
 - Devised and led initiatives for quality improvement and organizational educational objectives.
 - **Teaching Experience:** Human-Computer Interaction, Introductory Machine Learning, Programming Fundamentals, Foundations of Software Engineering, Web Design and Development.
- **Software Engineer and Demonstrator** 2014 - 2019
Mirpur University of Science and Technology Pakistan
 - Designed and managed software systems, training materials, and technical support for faculty and students.
 - Mentored students in hands-on problem-solving and troubleshooting software systems.

SELECTED PUBLICATIONS - [SEE ALL](#)

C=CONFERENCE, J=JOURNAL, R=IN REVIEW

- **Peer Reviewed Papers**
 - [C.26a] **Muhammad Raees** et al. (2026). Do People Appropriately Rely on AI Advice? An Analytical Review of HCI Research on Human-AI Decision-Making. In *ACM CHI Conference on Human Factors in Computing Systems*, Barcelona, Spain. **Honorable Mention Award**. DOI: [10.1145/3772318.3791467](https://doi.org/10.1145/3772318.3791467).
 - [C.26b] Yugo Iwamoto, **Muhammad Raees**, et al. (2026). Bridging Communication Gaps: Real-Time Kiosk Multimodal Conversations Between d/Deaf and Hard-of-Hearing and Hearing Users. In *International Conference on Human-Computer Interaction*, Montreal, Canada. DOI: [10.1007/978-3-032-29656-6_13](https://doi.org/10.1007/978-3-032-29656-6_13)
 - [C.25] **Muhammad Raees** et al. (2025). Exploring Persuasive Engagement to Reduce Over-Reliance on AI-Assistance in a Customer Classification Case. In *33rd ACM Conference on User Modeling, Adaptation and Personalization*, New York City, NY. DOI: [10.1145/3699682.3728320](https://doi.org/10.1145/3699682.3728320)
 - [J.24] **Muhammad Raees** et al. (2024). From explainable to interactive AI: A literature review on current trends in human-AI interaction. *International Journal of Human-Computer Studies*, Vol. 189. **Most cited on IJHCS**. DOI: [10.1016/j.ijhcs.2024.103301](https://doi.org/10.1016/j.ijhcs.2024.103301)
 - [J.21] **Muhammad Raees** et al. (2021). Context-Aware Services Using MANETs for Long-Distance Vehicular Systems: A Cognitive Agent-Based Model. *Scientific Programming*, 8835859. DOI: [10.1155/2021/8835859](https://doi.org/10.1155/2021/8835859)

• Under Review Papers

- [R.1] **Muhammad Raees** et al. How University Disability Services Professionals Write Image Descriptions for HCI Figures Using Generative AI. Under review at *ACM TACCESS*. DOI: [10.48550/arXiv.2602.08937](https://doi.org/10.48550/arXiv.2602.08937)
- [R.2] **Muhammad Raees** et al. Toward Appropriate Reliance on Generative AI: Evaluating Research in Human-GenAI Decision Support. Under review at *ACM CHI 2027*.
- [R.3] **Muhammad Raees** et al. Beyond Single Quality Scores: Understanding How People Judge 3D Gaussian Splatting Assets. Under review at *ACM CHI 2027*.

• Peer-Reviewed Late-Breaking Work and Posters

- [C.26a] **Muhammad Raees**, et al. (2026). "We Still Use Spreadsheets." Understanding Business Decision-Makers' Perceptions and Barriers to AI Analytics. In *ACM CHI Conference on Human Factors in Computing Systems - Extended Abstracts*, Barcelona, Spain. DOI: [10.1145/3772363.3798820](https://doi.org/10.1145/3772363.3798820)
- [C.26b] **Muhammad Raees**, et al. (2026). Trust to Reliance: Measurement Constructs for Human-AI Appropriate Reliance. In *ACM CHI Conference on Human Factors in Computing Systems - Extended Abstracts*, Barcelona, Spain. DOI: [10.1145/3772363.3798835](https://doi.org/10.1145/3772363.3798835)
- [C.26c] **Muhammad Raees**, et al. (2026). Understanding Interactive Model Engagement for Appropriate Reliance: An Exploration of AI-Assisted Decision Support in Customer Classification. In *ACM CHI Conference on Human Factors in Computing Systems - Extended Abstracts*, Barcelona, Spain. DOI: [10.1145/3772363.3798834](https://doi.org/10.1145/3772363.3798834)
- [C.25a] **Muhammad Raees***, Yugo Iwamoto*, et al. (2025). Exploring Generative AI to Support Disability Service Professionals in Writing Image Descriptions for HCI Science Figures. In *27th International ACM SIGACCESS Conference on Computers and Accessibility*, Denver, CO. DOI: [10.1145/3663547.3759763](https://doi.org/10.1145/3663547.3759763)
- [C.25b] **Muhammad Raees** et al. (2025). UX Challenges in Implementing an Interactive B2B Customer Segmentation Tool. In *ACM CHI Conference on Human Factors in Computing Systems - Extended Abstracts*, Yokohama, Japan. DOI: [10.1145/3706599.3706687](https://doi.org/10.1145/3706599.3706687)
- [C.23] **Muhammad Raees**, et al. (2023). Four challenges for IML designers: Lessons of an interactive customer segmentation prototype in a global manufacturing company. In *ACM CHI Conference on Human Factors in Computing Systems - Extended Abstracts*, Hamburg, Germany. DOI: [10.1145/3544549.3585788](https://doi.org/10.1145/3544549.3585788)

GRANTS, AWARDS, AND FELLOWSHIPS

• Publication Support - (\$800). RIT Student Government.	2026
• Conference Travel Grant - (\$3500). RIT.	2026
• Conference Travel Grant - (\$2500). ACM Travel Support + RIT.	2025
• Conference Travel Grant - (\$1500). NSF-NRT-RIT	2025
• Conference Grant - (\$500). RIT.	2025
• NSF AWARE-AI Trainee Fellowship - (\$1500+). NSF-NRT-RIT	2024-2027
• Graduate Research Scholarship - (\$150,000). Sappi Europe - Led by Konstantinos Papangelis.	2022-2027
• Scholarship Awards for PhD - (\$80,000+). HEC, Pakistan - Declined.	2022
• Master Scholarship Award - (\$1200). Bahria University, Pakistan	2016-17

HONORS AND RECOGNITION

• Best Paper Honorable Mention - CHI 2026	2026
• Recognition for Outstanding Reviews x 2 - CHI 2026	2026
• Trainee Council Leader - NSF-NRT-RIT-AWARE-AI	2025-2026
• Summa Cum Laude - Gold Medal - Bahria University, Pakistan	2017

TALKS AND PRESENTATIONS

• <i>Understanding User Reliance in Human-AI Interactions</i> ◦ Invited Talk: University of Bayreuth	Spring 2026
• <i>Do People Appropriately Rely on AI Advice?</i> ◦ Conference Presentation: CHI, Barcelona	Spring 2026
• <i>Understanding and Designing Human-Centered AI Interactions for Non-Expert Users</i> ◦ Thesis Talk: RIT	Fall 2025
• <i>Understanding and Designing Human-Centered AI Interactions for Non-Expert Users</i> ◦ Guest Lecture: RIT	Fall 2025
• <i>Examining Over-reliance in Business Decision-Making With AI</i> ◦ Conference Presentation: UMAP, New York City	Summer 2025
• <i>UX Challenges in B2B Interactive Customer Analytics</i> ◦ Conference Presentation: CHI, Yokohama	Spring 2025
• <i>Understanding Domain Users' Challenges with AI Systems</i> ◦ Guest Talk: RIT and Conference Presentation: CHI, Hamburg	Spring 2023

STUDENT MENTEES (RECENT ONLY)

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| • Jiayu Yu - M.S. Computer Science Student at RIT. | 2026-Present |
| • Jack Kirk - B.S. Game Design Student at RIT. | 2025-2026 |
| • Yugo Iwamoto - M.S. Human Computer Interaction - RIT. Now pursuing a PhD at GMU. | 2024-Present |

PROJECTS/PORTFOLIO

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| • Interactive ML for Business Professionals | 2023 - 2026 |
| ◦ Implemented analytics tools for business users to apply, compare, and interrogate model outputs on their own datasets, supporting real-world decision-making workflows. | |
| ◦ Led qualitative evaluations (30+) with semi-structured interviews, analyzing key human factors— trust, understanding, and perceived control . (Published: CHI '23, '25, '26). | |
| • AI-Assisted Decision Support | 2024 - 2026 |
| ◦ Conducted mixed-methods studies, combining behavioral and subjective measures to understand users' appropriate reliance on AI advice, building their analytical engagement. | |
| ◦ Findings inform key design decisions for evaluating users' reliance on AI. (Published: UMAP '25, CHI '26). | |
| • AI-Assisted Writing for Non-Experts' Work Support | 2024 - 2026 |
| ◦ Conducted mixed-methods studies with DSO professionals to evaluate their reliance on AI-assisted outputs in writing alt text for complex science figures. | |
| ◦ Follow-up evaluations using interviews and a value-centric lens of produced outputs. (Published: ASSETS '25).
<i>Under Review: TACCESS '26.</i> | |
| • Conversational Visualization Authoring | 2026 - 2027 |
| ◦ Developed an interactive tool for conversational interactions with data and visualization, evaluating the value of AI-assisted collaborative outputs using AI. User studies are planned for detailed analysis. | |

SKILLS

- **General:** Python (Data Analysis, Machine Learning), C/C++, JavaScript, R, SQL, App/Web/ML Prototyping
- **Research:** User-Centered Interaction Design, Quantitative and Qualitative Methods, Surveys, Interviews, Thematic Analysis, Experimental Design, Usability and A/B Testing
- **Domains:** User Experience (UX) Research, AI-Assisted Decision Support, Visualization, Predictive Analytics
- **Analytics:** Big Data Systems, Tableau, Power BI, Plotly Dash, HighCharts, GIS Visualization
- **Misc.:** Design (Figma, Canva, Miro), Studies (Qualtrics, Prolific), Task Automation, Teamwork and Leadership, Collaboration, Mentorship

SERVICE AND VOLUNTEERING

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| • Vice President - RIT Doctoral Student Association | 2025-Present |
| • Student Volunteer - ACM Conference UMAP - New York City. | 2025 |
| • Technical Mentor - RIT ASA DataFest | 2024-Present |
| • GENIUS Olympiad Judge - Rochester Area | 2024-Present |
| • Mentor - CodeToPhD Application Guide | 2025-Present |
| • Project and Client Manager - Statistics Without Borders | 2024-Present |
| • Data Science Volunteer - Hildreth Institute | 2024-2025 |
| • Club Initiator and Treasurer - RIT Pakistani Student Association | 2024-2025 |
| • Data Science Volunteer - Data Kind | 2023-2025 |

PROGRAM COMMITTEE MEMBER/REVIEWER

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| • International Journal of Human-Computer Studies (IJHCS) - 1 Review | 2026 |
| • ACM CHI Conference on Human Factors in Computing Systems (CHI) - 7 Reviews | 2026 |
| • ACM Conference on Intelligent User Interfaces (IUI) - 3 Reviews | 2026 |
| • ACM CHI Conference on Human Factors in Computing Systems (CHI) - 4 Reviews | 2025 |
| • International Journal of Human-Computer Studies (IJHCS) - 3 Reviews | 2025 |
| • ACM Conference on Designing Interactive Systems (DIS) - 1 Review | 2025 |
| • ACM Symposium on Engineering Interactive Computing Systems (EICS) - 1 Review | 2025 |
| • ACM Conference on Intelligent User Interfaces (IUI) - 3 Reviews | 2025 |
| • International Journal of Human-Computer Studies (IJHCS) - 2 Reviews | 2024 |

PROGRAM COMMITTEE

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| • Associate Chair - Posters Track - Handled 13 Manuscripts | CHI 2026 |
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TRAINING AND TEACHING

- **Co-Instruction:** Game Design & Development (320), Game Development Processes (601). 2026-2027
- **Teaching:** Machine Learning, Human-Computer Interaction, Web Development, Programming. 2019-2022
- **Writing:** Technical Writing at Medium, Course Book - “Web Design” for an open university. 2021-2026
- **Certification:** UX Design, Responsible Conduct of Research, Data Science, Data Analytics. *On-going*

REFERENCES

- 1 **Dr. Konstantinos Papangelis** (Primary Advisor)
Associate Professor, Rochester Institute of Technology.
Rochester, NY. USA.
Email: kxpigm@rit.edu
- 2 **Dr. Garreth W. Tigwell** (Dissertation Committee Member)
Associate Professor, Rochester Institute of Technology.
Rochester, NY. USA.
Email: gwtics@rit.edu
- 3 **Dr. Ioanna Lykourantzou** (Dissertation Committee Member)
Associate Professor, Utrecht University.
Utrecht, Netherlands.
Email: i.lykourantzou@uu.nl
- 4 **Dr. Vassilis-Javed Khan** (Mentor)
Senior UX Researcher, European Commission.
Brussels, Belgium.
Email: vjkhan@vjkan.com