Curriculum vitæ

Yasra Chandio
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Areas of Specialization

I am a cyber-physical systems (CPS) researcher specializing in **Mixed Reality** platforms and applications that impact a user's physical or cognitive safety. I *develop adaptive frameworks that identify, measure, and adjust key system parameters*, enabling Mixed Reality systems to dynamically adapt to their environmental conditions and user needs.

Education

01/2020–present	PhD in Computer Engineering, University of Massachusetts Amherst
09/2018–12/2019	MS Computer Science, Binghamton University (SUNY)
01/2010–02/2014	BE Software Engineering, MUET, Pakistan

Honors & Awards

2024	Named MIT EECS Rising Star *.
2024	Received UMASS Campus Climate Improvement Grant ($2500).
2024	Named Cyber Physical System (CPS) Rising Star[†].
2024	College of Engineering Diversity, Equity, and Inclusion (DEI) Award[‡] **[Link]**.
2024	Received IEEE VR Diversity, Equity, Inclusion, and Accessibility Grant.
2024	Research featured at **UMASS**, **ScienceDaily**, and **BBC**.
2024	Scholar at CRA-WP IDEALS.
2023	Received Abbe Grant to attend 10th Heidelberg Laureate Forum (HLF).
2023	Young Researcher at 10th Heidelberg Laureate Forum.
2023	Inaugural student inductee in ECE Diversity, Equity, and Inclusion Committee.
2023	CPS-IoT Week SIGBED student travel award (*declined*).
2022	Best Ph.D. Forum Presentation Award at ACM SenSys.
2022–2024	Computing Research Association-Education (CRA-E) Graduate Fellow at CRA.
2022	Three Minute Thesis (3MT) finalist at UMASS Amherst. **[Talk Link]**
2022	Scholar at CRA-WP Grad Cohort.
2021	Invited to attend Google PhD Fellowship Summit.
2021	Honorable mention in UMASS ECE 3MT.
2021	Selected for Computer Research Mentorship (CSRMP) Program at Google.
2021	Scholar at CRA-WP Grad Cohort.
2019	Grace Hopper Scholar.
2019	NSF travel grant to attend IEEE IGSC in Alexandria, VA, USA.
2019	Summer Provost Fellowship at Binghamton University.
2017	Best Paper Audience Choice Award at ACM BuildSys.
2017	ACM SenSys travel grant to attend ACM BuildSys/SenSys in Delft, NL.

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[*]19% acceptance rate.

[†]16% acceptance rate.

[‡]an honor bestowed to only one student college-wide every year.

Publications

[1] **Yasra Chandio**, Momin Ahmed Khan, Khotso Selialia, Luis Antonio Garcia, Joseph DeGol, Fatima M. Anwar, *"A Neurosymbolic Approach To Adaptive Feature Extraction In SLAM"*, at IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS**), 2024. **[to appear][PDF]**

[2] **Yasra Chandio**, Victoria Interrante, Fatima M. Anwar, *"Human Factors At Play: Understanding The Impact Of Conditioning On Presence And Reaction Time In Mixed Reality"*, at IEEE Conference on Virtual Reality and 3D User Interfaces (**VR§**), 2024. **[PDF]**

[3] **Yasra Chandio**, Noman Bashir, Fatima M. Anwar, *"Stealthy and practical multi-modal attacks on mixed reality tracking"*, at IEEE International Conference on Artificial Intelligence & extended and Virtual Reality (**AIxVR**), 2024. **[Best Paper Finalist][PDF] [Poster at *HLF'23*]**

[4] **Yasra Chandio**, Noman Bashir, Tian Guo, Elsa Olivetti, Fatima M. Anwar, *"Scoping The Decarbonization Of Collaborative Mixed Reality"*, at IEEE International Symposium on Emerging Metaverse (**ISEMV**), 2024. **[PDF]**

[5] **Yasra Chandio**, Victoria Interrante, Fatima M. Anwar, *"Balancing Presence And Safety Using Reaction Time In Mixed Reality"*, at Workshop at IEEE International Symposium on Mixed and Augmented Reality (**SafeAR@ISMAR**), 2024. **[PDF]**

[6] Khotso Selialia, **Yasra Chandio,** Fatima Anwar, *"Mitigating feature heterogeneity biases in Federated Learning"*, at ACM Conference on Fairness, Accountability, and Transparency (**FAccT**), 2024. **[PDF]**

[7] **Yasra Chandio**, Noman Bashir, Victoria Interrante, Fatima M. Anwar, *"Investigating the correlation between presence and reaction time in mixed reality"*, in IEEE Transactions on Visualization and Computer Graphics (**TVCG¶**), 2023. **[PDF]**

[8] Noman Bashir, **Yasra Chandio**, David Irwin, Fatima Anwar, Jeremy Gummeson, Prashant Shenoy, *"Jointly managing electrical and thermal energy in solar- and battery-powered computer systems"*, at ACM International Conference on Future Energy Systems (**e-Energy**), 2023. **[PDF]**

[9] **Yasra Chandio**, Noman Bashir, Fatima M. Anwar, *"Dataset: HoloSet - A dataset for visual inertial pose tracking in extended reality"*, at 5th International SenSys/BuildSys Workshop on Data (**DATA**), 2022. **[PDF]**

[10] **Yasra Chandio**, *"Towards secure and immersive mixed reality: PhD Forum Abstract"*, at 20th ACM Conference on Embedded Networked Sensor Systems (**SenSys**), 2022. **[Best Presentation Award] [PDF]**

[11] Khotso Selialia, **Yasra Chandio**, Fatima M. Anwar, *"Federated Learning Biases in Heterogeneous Edge-Devices - A Case-Study"*, at 4th International SenSys/BuildSys Workshop on Challenges in Artificial Intelligence and Machine Learning for Internet of Things (**AIChallengeIoT**), 2022. **[PDF]**

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§selected to appear in IEEE TVCG, due to substantial contribution (top 12% papers).

¶to be presented at IEEE VR 2024.

[12] **Yasra Chandio**, Fatima M. Anwar, *"Poster: Spatiotemporal Security in Mixed Reality systems"*, at 18th ACM Conference on Embedded Networked Sensor Systems (**SenSys**), 2020. **[PDF]**

[13] **Yasra Chandio**, Aditya Mishra, Anand Seetharam, *"GridPeaks: Employing Distributed Energy Storage For Grid peak Reduction"*, at IEEE International Green and Sustainable Computing conference (**IGSC**), 2019. **[PDF]**

[14] **Yasra Chandio**, Jo A gila Bitsch, Affan A. Syed, Muhammad Hamad Alizai, *"Networking Wireless Energy in Embedded Networks"*, in ACM Transactions on Sensor Networks (**TOSN**), 2018. **[PDF]**

[15] Samar Abbas, Abu Bakar, **Yasra Chandio**, Khadija Hafeez, Ayesha Ali, Tariq M Jadoon, Muhammad Hamad Alizai, *"Inverted HVAC: Greenifying Older Buildings, One Room at a Time"*,in ACM Transactions on Sensor Networks (**TOSN**), 2018. **[PDF]**

[16] Khadija Hafeez, **Yasra Chandio**, Abu Bakar, Ayesha Ali, Affan A. Syed, Tariq M. Jadoon, Muhammad Hamad Alizai, *"Inverting HVAC for Energy Efficient Thermal Comfort in Populous Emerging Countries"*, at ACM International Conference on Systems for Energy-Efficient Built Environments (**BuildSys**), 2017. **[Audience choice award winner] [PDF]**

[17] M. Hamad Alizai, Qasim Raza, **Yasra Chandio**, Affan A. Syed, Tariq M. Jadoon, *"Simulating Intermittently Powered Embedded Networks"*, at 13th International Conference on Embedded Wireless Systems and Networks (**EWSN**), 2016. **[PDF]**

Under review & **in preparation**

[1] **Yasra Chandio**, Victoria Interrante, Fatima M. Anwar, *"Tap Into Reality: Understanding The Impact Of Interactions On Presence and Reaction Time In Mixed Reality"*, at IEEE Conference on Virtual Reality and 3D User Interfaces (**VR**), 2025. **[**ready for submission**]**

[2] **Yasra Chandio**, Khotso Selialia, Luis Antonio Garcia, Joseph DeGol, Fatima M. Anwar, *"Lost In Tracking Translation: Charting The Uncharted Territories Of Visual SLAM"* in ACM Transactions on Sensor Networks (**TOSN**), 2024. **[**ready for submission**]**

[3] **Yasra Chandio**, Victoria Interrante, Fatima M. Anwar, *"Reaction Time As A Proxy for Presence In Mixed Reality Environments With Break-In Presence"*, at IEEE Conference on Virtual Reality and 3D User Interfaces (**VR**), 2025. **[**in preparation**]**

[4] **Yasra Chandio**, Victoria Interrante, Fatima M. Anwar, *"Towards Objective And Implicit Presence Measures In Mixed Reality"*, at Late-breaking work (**Poster**), 2024. **[**under review**]**

[5] Momin Ahmed Khan, **Yasra Chandio**, Fatima Anwar, *"Knowledge Distillation In Adversarial Federated Learning"*, at Annual Conference on Neural Information Processing Systems (**NeurIPS**), 2024. **[**under review**]**

[6] Khotso Selialia, **Yasra Chandio**, Jimi Oke, Fatima Anwar, *"Eliminating Subgroup Bias For Federated Learning In Heterogeneous Space"*, at Annual Conference on Neural Information Processing Systems (**NeurIPS**), 2024. **[**under review**]**

[7] Abdullah Al Ishtiaq, Raja Hasnain Anwar, **Yasra Chandio**, Fatima M. Anwar, Syed Rafiul Hussain, Muhammad Taqi Raza, *"Cloud Nine Connectivity: Evading in-Flight Paywalls For Free Internet"*, at Annual Computer Security Applications Conference (**ACSAC**), 2024. **[under review]**

[8] Momin Ahmad Khan, Virat Shejwalkar, **Yasra Chandio**, Amir Houmansadr, Fatima M. Anwar, *"A Critical Analysis Of The Pitfalls In Federated Learning Defense Evaluations"*, at Network and Distributed System Security Symposium (**NDSS**), 2025. **[under review]**

[9] Diana Romero, **Yasra Chandio**, Ruchi Patel, Fatima Anwar, Salma Elmalaki, *"Sensing Group Behavior In Mixed Reality"*, at ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (**IMWUT/Ubicomp**), 2025. **[in preparation]**

[10] John Murray, **Yasra Chandio**, Fatima Anwar, Michael Zink, *"Exploring Relationship Between Quality Of Experience And Quality Of Service In Collaborative Mixed Reality"*, at ACM Multimedia Systems Conference (**MMSys**), 2025. **[in preparation]**

Employment

01/2020–present	Graduate Research Assistant, **Emerging Technologies Lab**, UMass Amherst, advised by Fatima M. Anwar.
09/2018–12/2019	Graduate Research Assistant, Computer Science Department, Binghamton University, advised by Aditya Mishra and Gaunhua Yan.
01/2016–06/2017	Research Associate, **Systems and Networks Lab**, LUMS, Pakistan, advised by Muhammad Hamad Alizai.
12/2014–12/2015	Research Engineer, **Systems and Networks Lab**, NUCES, Pakistan, advised by Affan A. Syed.

Teaching and Mentoring

Fall 21, 22, 23	Graduate Mentor and TA for course projects on design issues in MR (ECE 597SD).
Summer 23	Graduate Mentor at UMASS REU site.
Spring 21 to 24	Teaching Assistant, Introduction to Embedded System (ECE 231).
Spring 20	Guest lecturer, Introduction to Embedded System on topic of *BeagleBone Black*.
Fall 19 (SUNY)	Teaching Assistant for Programming Languages (CS 571).
Fall 16 (LUMS)	Teaching Assistant for Internet of Things (CS 677).

Service to the Profession

Technical Program Committee member for DATA@Buildsys 2024.
Technical Program Committee member for ACM S3@Mobicom 2024.
Student Volunteer for ACM SenSys 2022.
Shadow PC member for ACM SenSys 2022.
Shadow PC member for ACM EuroSys 2022.
Review committee member for Extended Reality track at Grace Hopper Celebration 2022.
Review committee member for VR/AR/MR track at Grace Hopper Celebration 2021.

Service to the Community

Organizer, UMASS ECE Women Dinner Series, 2024-2025 (raised $2500).*[Campus level]*
Founding Chair, ECE Grad Gender Diversity group, 2022. *[College level]*
Instructor, 3-week UMASS Turing Summer Program, 2022-2025. *[High School level]*
Organizer, ECE grad women retreats 2023-2025 (raised $1700 funding). *[College level]*
Organizer and Panelist, ECE Graduate Orientation, 2023-2025. *[College level]*
Panelist, Graduate Women In STEM (GWIS) Undergraduate Panel, 2024. *[Campus level]*
Demo, Pioneer Valley Chinese Immersion Charter School, 2024. *[Elementary level]*
Panel Moderator, UMASS Women in Engineering Day, 2023. *[High School level]*
Instructor, 3-week UMASS K-12 Engineering Outreach, 2021. *[High School level]*
Volunteer, Binghamton University Commencement, 2019. *[College level]*
Volunteer, Amherst Survival Center, 2020. *[community at large]*