Yasra Chandio

My commitment to diversity, equity, and inclusion (DEI) is rooted in my personal experiences and reinforced through my academic and outreach activities. I believe in creating an environment where students and researchers from all backgrounds feel valued, supported, and empowered to succeed. Through my teaching, research, and service, I strive to reduce barriers, build community, and promote equitable opportunities in academia and beyond.

My Experience with Diversity, Equity, and Inclusion

My journey as a female researcher from a developing country has shaped my commitment to advancing DEI. As the first woman in my family to pursue a career in engineering and earn a graduate degree in the United States, I have faced significant challenges but also acknowledge the privilege of accessing higher education and pursuing opportunities that many in similar circumstances might not have. This experience has given me a unique understanding of the barriers marginalized and underrepresented groups face and motivated me to advocate for equity and inclusivity. As someone who has navigated systemic and cultural obstacles, I have led efforts to build supportive communities in my academic environment and work toward creating pathways for others to succeed.

At the college level, I chair the College of Engineering (CoE) Dean's graduate advisory group, organizing community-building initiatives and liaising between students and the Dean's office to bridge the gap between graduate students and college leadership. As a group, we play a critical role in making sure that student perspectives, concerns, and needs are heard and addressed at the institutional level. As Chair, I guide discussions, prioritize actionable items, and collaborate with the Dean's office to develop initiatives that enhance student success and well-being. Beyond facilitating communication, **I focus on creating a sense of community for graduate students by initiating programs that address academic, professional, and social needs.**

In my department, I co-organize the ECE Women Dinner Series[1], supported by a competitive UMASS campus climate grant, and was the first student inductee into the ECE DEI committee. I helped initiate a Tea Time series, providing informal spaces for graduate students to connect and discuss challenges. I contributed to developing a peer advising program, pairing undergrad freshmen with junior and senior peers for academic, professional, and personal support. I founded the ECE grad gender diversity group, growing it from three to over thirty participants to support female and non-binary graduate students in connecting and sharing experiences. With funding I raised, the group hosts bi-weekly meetings and retreats, providing opportunities for mentorship, community-building, and professional development. I have also actively supported students in crisis by advocating for their needs at higher administrative levels. In one instance, I worked directly with the dean's office to address a conflict over shared lab spaces that negatively impacted a fellow student. **I successfully pushed for creating and enforcing a new rule in the college to provide equitable access to shared lab spaces so students now have protection and resources** in place to prevent similar issues in the future. In 2024, my efforts were recognized with the UMass College of Engineering DEI Award.

Beyond my institute, I am dedicated to outreach and mentorship that inspires the next generation of leaders. **I have designed and led a 3-week course for Springfield High School, where I introduced high school seniors, many from underrepresented communities, to embedded systems programming.** I mentored high school students through the UMass Turing Summer Program by delivering lectures and facilitating research demos. I also run sessions with elementary school classes and high school CS+robotics clubs on emerging technologies, sparking their curiosity and encouraging them to envision future careers in STEM. These initiatives aim to make technology accessible and reduce barriers for students without exposure to such opportunities.

In the broader research community, I have championed DEI through my roles as CRA-E Grad Fellow and the editor for CRA undergraduate research highlight[2], where I featured the stories of undergraduate researchers from diverse backgrounds, showcasing their unique journeys and contributions. I mentored underrepresented students in research through the NSF REU Computing for an Equitable Energy Transition (CEET) program, guiding them to address real-world challenges with technical and societal impact.

In my research, I focus on designing safer and adaptive Mixed Reality (MR) systems, enabling all users to have secure, fair, and personalized experiences. My work addresses challenges such as bias and safety risks in MR. As part of my commitment to open science, I released the HoloSet dataset [1], which supports broader participation and innovation in MR research.

My Plans for Diversity, Equity, and Inclusion

As a faculty, I plan to integrate DEI principles into all aspects of my academic career, including research, teaching, mentorship, and service. Through inclusive practices and impactful leadership, I will focus on creating supportive environments, addressing systemic inequities, and enabling diverse voices in academia and beyond.

① Recruiting, Supporting and Retaining Diverse Students

I will prioritize creating a welcoming and inclusive environment by actively recruiting students from diverse backgrounds and

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[1] https://www.umass.edu/engineering/news/ece-womens-dinner
[2] https://sparc.cra.org/stories/

adopting holistic approaches to recruitment. I will consider nontraditional metrics such as creativity, problem-solving skills, and lived experiences, often overlooked in traditional selection processes. As a leader of my research group, I will foster open communication and provide adaptive support to meet the individual needs of my students, whether through mentoring on research methodologies, offering flexible schedules, or connecting them with resources for personal or professional development. This will sometimes involve having open discussions about difficult topics so that all students feel heard, respected, and supported in navigating challenges.

2 Building Inclusivity in the Classroom and Research Pipeline

As stated in my teaching statement, in the classroom, I will design courses that emphasize both inclusivity and relevance. I will implement strategies like active learning, peer collaboration, and diverse case studies to engage students from all backgrounds. By creating opportunities for students to contribute their unique perspectives, I aim to challenge traditional narratives in STEM and demonstrate how diversity strengthens innovation. I will also address systemic inequities by curating accessible resources and making all necessary materials available to help students fully engage with the course, regardless of their financial situation.

To build a diverse research pipeline for PhD programs, I believe we must start at the undergraduate level or earlier, offering opportunities that inspire and prepare students for advanced careers in STEM. I will actively conduct outreach in the community, including giving talks and participating in panels at institutions and events where students may not typically consider or apply for PhD programs. By connecting with students from underrepresented backgrounds and creating pathways for them to explore research, I aim to contribute to a more equitable and inclusive academic environment.

3 Leadership and Service for Equity and Inclusion

I understand the importance of building initiatives that create lasting institutional change. I will actively engage with my department's existing initiatives, contributing to programs that support students' well-being and promote an inclusive academic culture. Additionally, I will work to strengthen mentoring programs, build bridges between academia and industry, and work with my department to create inclusive networking opportunities for students and faculty to support collaboration and professional growth. Outside academia, I will continue engaging with K-12 outreach and professional organizations to inspire underrepresented groups to pursue STEM careers. By extending DEI efforts beyond my lab and classroom, I aim to foster a culture of equity and inclusion at multiple levels of academia and the broader community.

4 Research for Societal Impact and Inclusivity

The problems I choose to address in my research will reflect my commitment to societal impact and inclusivity. I will focus on challenges relevant to underserved and marginalized communities, such as designing personalized and accessible MR systems, improving sustainability in technology, and addressing biases in computing systems. These research directions align with my belief that technology should benefit everyone equitably rather than perpetuate existing inequalities. Furthermore, I will adopt open science practices, sharing datasets, tools, and methodologies to democratize research participation and amplify my work's impact.

References

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