AYESHA A. MALIK

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EDUCATION

Aug 2021 – Dec 2025 **University of Central Florida** B.S. in Computer Science

PUBLICATIONS

Genome Biology 2025 **MOADE: high-resolution digital dissociation with deep multimodal autoencoder**
* co-first author
Sun, J.*, **Malik, A.***, Lin, T. et al. MOADE: a multimodal autoencoder for dissociating bulk multi-omics data. Genome Biol 26, 325 (2025). https://doi.org/10.1186/s13059-025-03805-1

ICIBM 2025 **Benchmarking cellular deconvolution algorithms to predict cell proportions: A literature review.**
Bratton, A., **Malik, A. A.**, Sun, J., Li, Q., & Zhang, W. *Benchmarking cellular deconvolution algorithms to predict cell proportions: A literature review*. Proceedings of the International Conference on Intelligent Biology and Medicine (ICIBM 2025) (Accepted, In Press). Preprint Link

IEEE UEMCON 2024 **Virtual Reality on Assessing the Motor Skills of Individuals with Autism Spectrum Disorder**
A. A. Malik, A. M. Zaki, N. C. Tran, I. X. Liang, T. Liu and D. Valles, "Virtual Reality on Assessing the Motor Skills of Individuals with Autism Spectrum Disorder," 2024 IEEE 15th Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON), Yorktown Heights, NY, USA, 2024, pp. 548-555, https://ieeexplore.ieee.org/document/10754723

IEEE VR 2024 **Collecting and Logging OpenVR Data from SteamVR Applications**
E. S. Martinez, **A. A. Malik** and R. P. McMahan, "CLOVR: Collecting and Logging OpenVR Data from SteamVR Applications," 2024 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), Orlando, FL, USA, 2024, pp. 485-492, https://ieeexplore.ieee.org/document/10536207

RESEARCH EXPERIENCE

Oct 2024 – Feb 2025 **National Science Foundation Research Experience for Undergrads (NSF REU) |** Univ. of Central FL
- Award # 2246796: Project focuses on developing computational methods for integrating multi-dimensional biological data to improve phenome prediction.
- Produced survey paper that reviews ML algorithms for analyzing cell composition and gene expression patterns in tissue samples. The models train on sRNA sequencing data, and validate bulk RNA samples.
- Preprocessed and annotated dataset of 45,000 gene expression samples
- Set up, trained, and evaluated 8 different cell deconvolution algorithms
- Performed statistical analysis to compare predictions with ground truth.

June 2024 - July 2024 **National Science Foundation Research Experience for Undergrads (NSF REU) |** Texas State University
- Award # 2150135: Developed a VR tool in Unity to test the motor skills of children with Autism
- Processed resulting data, and tested on various ML supervised regression models to determine level of motor delay and determine most influential component of movement on motor skill proficiency
- Received first place in REU program poster presentation competition
- Published paper as first author in IEEE UEMCON 2024 Conference

Jan 2024 – May 2024 **National Science Foundation Research Experience for Undergrads (NSF REU) |** Univ. of Central FL
- Award #2232448: Involves creating a tool to log multimodal data in VR for ML applications
- Developed a WebSocket application to live display the data on a web browser, allowing remote participants to stream it in real time.
- Created all documentation for the codebase of the project.
- Conducted participants through study in VR and managed resulting data.

Aug 2023 – May 2024 **Honors Undergraduate Thesis Program |** Univ. of Central Florida
- Opportunity to develop, propose, and defend a thesis under guidance of a faculty thesis committee
- My project focused on exploring the effects of Humanoid Visual Alterations on Task Performance and User Perceptions During Human-Robot Interaction in Virtual Reality.
- Note: I successfully proposed but ultimately didn't defend due to my thesis chair leaving the university

AWARDS

Dec 2025 **Distinguished Undergraduate Researcher Award:** Univ. of Central FL
Nov 2025 **First Place Computer Science Senior Design Project:** Univ. of Central FL, Senior Design Showcase
↳ AI Firewall to Prevent Human Trafficking
July 2024 **First Place Poster Presentation:** Texas State Univ., Undergraduate Research Symposium
↳ Virtual Reality on Assessing the Motor Skills of Individuals with Autism

PRESENTATIONS

August 2025 Oral Presentation: "**MOADE"** (Genome Biology 2025), Future Scientists in AI Session at **ICIBM 2025**
August 2025 Oral Presentation: **"Benchmarking Cellular Deconv. Algorithms"** (ICIBM 2025), at **ICIBM 2025**
July 2024 Poster Presentation: **"Virtual Reality Tool For Individuals with Autism",** (IEEE UEMCON 2024) at **TXST**

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SKILLS

Languages: R, Python, C#, JavaScript, SQL, LaTeX, Matlab
Tools & Frameworks: Unity, Blender, GitHub, Linux/ HPC env, Docker, Conda, Qualtrics
Research & Professional Skills: Manuscript drafting & revising, IRB drafting, literature reviews, benchmarking
Python Libraries: Pytorch, TensorFlow, scikit-learn, Pandas, NumPy, SciPy, Matplotlib, Seaborn

WORK EXPERIENCE

Sept 2024 - Present **CS Graduate Student Services Office |** Univ. of Central Florida | Assistant
- Answer email, in person, and phone inquiries from CS PhD and Master's students, and provide information on program requirements and departmental policies
- Help organize the hiring process for grader's, GTA's, post doc's, and professors
- Help facilitate graduate student open houses
- Give tours to prospective professors and postdoc candidates

May 2022 – Aug 2023 **Infotainment |** Electronics Technician
- Repaired car infotainment systems. Micro-soldering, electronics troubleshooting, and diagnostics

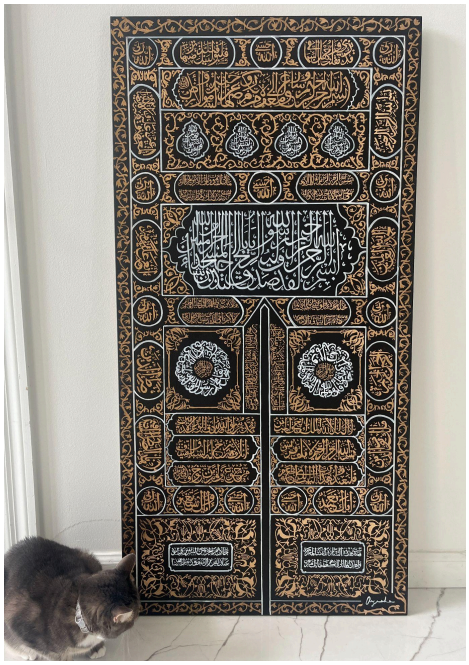
VOLUNTEER EXPERIENCE

Nov 2023 – Present **Project Downtown Orlando |** Secretary
- Local non-profit that provides over 800 meals & hygiene kits to individuals in need every month
- Oversee backend operations such as planning and executing logistics for services, developing and managing annual budget of $35,000
- Manage all legal compliance and filings to keep federal, state, and local records up to date
- Assisted in developing website and collaborative workspace for organization
- Represent PDO in all official capacities when interacting with sponsors & third party service providers.
- Serve as central point of communication and coordination for the board and sponsors

Aug 2023 – May 2024 **Microsoft TEALS |** Teaching Assistant
- Program that builds sustainable computer science programs in high school.
- Assist the instructor with teaching computer science lessons on python and java.
- Provide one-on-one guidance to 25 students on
- programming assignments.

PERSONAL PROJECTS

Jan 2023 - May 2023 **Arduino Controlled Iron Man Helmet**
- https://youtu.be/KnIzCPokLtY
- Fully automated Iron Man Helmet I built from scratch
- Implements use of Arduino Nano, servo driver, 10 motors, 3D printed hull, LED eyes, and rechargeable power supply
- Coding, wiring, and assembly took me over 150 hours



My entire life **Paintings**
- One day I aspire to host an art exhibition and donate all proceeds to primary education institutions in Pakistan.