TAQIYA EHSAN

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RESEARCH INTERESTS Computer Vision, Machine Learning, Multimodal Learning

EDUCATION

Rutgers University, New Brunswick, NJ — Expected Graduation: 2028
PhD in Machine Learning — **GPA: 4.0**
Advisor: Dr. Jorge Ortiz, Dept. of Electrical & Computer Engineering
Awards: Eugene V. DuBois Graduate Fellowship

Rutgers University Honors College, New Brunswick, NJ — 2019 - 2023
B.S. in Electrical & Computer Engineering; Minor in Computer Science — **GPA: 4.0**
Awards: Matthew Leydt Society, Dean's List (all semesters), Rutgers James Dickson Carr Scholarship, Honors College Scholar

TECHNICAL SKILLS

Programming Languages: Python, Java, MATLAB, C/C++, HTML5, CSS, JavaScript, Swift, RISC-V, SystemVerilog
Tools: PyTorch, NumPy, Pandas, Tensor Flow, OpenCV, Vim, Keras, Django

PROJECTS

ComorbiViz : A Data Insights Application for Obesity (Swift, Data Analytics & Visualization) — January 2023 – May 2023
Paper in proceedings of 11th IEEE Int'l Conference on e-Health and Bioengineering (EHB)
- Collaborated with Data Scientists from *Novo Nordisk* to develop an iOS-based application for obesity data representation.
- Developed prototype of an end-user platform that provides a quantitative view into the comorbidity risks of patients and the cost associated with their treatment based on state and national level data.

Visual Prompting for Depth Estimation (Computer Vision, Machine Learning) — June 2022 – November 2022
Poster presented at 37th Annual MIT Summer Research Symposium
- Trained a visual prompt on a depth estimation CNN and analyzed comparative performance before and after prompting.
- Tested the prompter model for distribution shifts on a vision transformer backbone.

Analyzing Social Distancing Based on Sensory Inputs (Computer Vision, Machine Learning) — January 2021 – August 2021
Paper in proceedings of 8th ACM Int'l Conference on Systems for Energy-efficient Buildings, Cities, and Transportation (BuildSys)
- Created the pipeline to process over 1 billion traffic cam and dashcam image data for social distancing analysis.
- Built Python programs to perform brightness filtering, people detection, and resolution enhancement on the image dataset.

RESEARCH EXPERIENCE

Rutgers Cyber-Physical Intelligence Lab, Piscataway, NJ
Graduate Research Assistant — September 2023 – Present
- Conducting research on cross-modal inference on visual and inertial measurement unit (IMU) data.
- Developing a naïve pipeline to infer accelerometer readings from video footage of people on a crosswalk.
- Assisting data collection and development of a cross-modal inference model for visual and IMU data.

Undergraduate Research Assistant — January 2021 – May 2022
- Collaborated on ambient sensing programs with a PhD Candidate, involving efficient audio classifier development through dataset research, feature extraction experimentation, and exploring Convolutional Neural Network models.
- Collaborated with 4 interns on the project "Analyzing Social Distancing Based on Sensory Inputs."

MIT Summer Research Program, Cambridge, MA — June 2022 – November 2022
Undergraduate Research Assistant at Computer Science & Artificial Intelligence Lab (CSAIL)
- Independently led and developed the project "Visual Prompting for Depth Estimation" supervised by Dr. Phillip Isola.
- Attend weekly professional development workshops, research seminars, and journal clubs.

LEADERSHIP EXPERIENCE

Rutgers Residence Life, New Brunswick, NJ — August 2023 – Present
Assistant Residence Life Coordinator
- Supervise 17 Resident Assistants and advise the Hall Govt. overseeing ~750 residents across 2 buildings.
- Act as the first point of contact for RAs across 2 campuses for crisis management and conflict resolution while on call.

Rutgers Society of Women Engineers, New Brunswick, NJ — September 2020 - Present
Peer Mentor
- Facilitating 1:1 mentorship for underclassman female engineers in the SWE Leaders-Learners Program.
- Providing guidance about available resources to support their undergraduate and professional careers.