Danyal Khorami

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Summary

Interdisciplinary researcher at the intersection of embedded sensing, computational media, multimodal ML / computer vision, and HCI. I build reproducible real-time systems end-to-end, time-synchronized sensor pipelines, and benchmarking to learning-based models and deployed interactive installations (XR/game-engine workflows). With a design background, I bring strong visual communication and collaborate effectively with engineering and computer science teams to deliver reliable prototypes under constraints.

Education (U.S.)

Arizona State University, Tempe, AZ *Expected May 2026*
MFA in Interdisciplinary Media Arts, **GPA 3.97/4.00**

Research Interests

Embedded AI; Sensor Fusion & IoT; Computer Vision; Computational Media; Temporal Perception Models; Agentic AI; XR/Motion Capture.

Selected Coursework

Deep Learning Foundations and Applications (EEE 598); Machine Vision and Pattern Rec (EEE 515); Ray Tracing (EEE 598); Minds and Machines (AME 598); Programming for the Internet of Things (AME 598).

Research Experience & Technical Projects

Mesquite MoCap Open-Source Wearable 6-DoF Motion Capture System
Arizona State University, Tejaswi Lab (Embedded Systems / IoT) *Fall 2024–Present*

- **Developed** a low-cost, full-body MoCap system using 15 networked ESP32-C3 IMU nodes.
- **Architected firmware** (C++/Arduino) for time-synchronized UDP streaming; optimized packet handling to achieve **<15 ms latency** and **99.7% packet delivery** at 32 FPS.
- **Validated system accuracy** via quantitative benchmarking against industry-standard optical systems (OptiTrack), achieving **∼2–5° average joint error**; accepted to **IndiaFOSS 2025; IEEE paper under review**.

Multi-Phone 3D Capture Rig Small-Scale Multi-View Motion Capture
Arizona State University, The GAME School / Tejaswi Lab *Sep 2025–Present*

- **Designing hardware and software** for a synchronized multi-phone rig enabling low-cost 3D capture.
- **Developing pipelines** for camera calibration, temporal synchronization, and learning-based pose estimation.

Temporal Fusion Transformers for Financial Forecasting
Arizona State University, EEE 598 Deep Learning Final Project *Sep 2025–Dec 2025*

- **Deep Learning Researcher:** Designed a mixed-frequency pipeline predicting S&P 500 returns, integrating high-frequency market data with lower-frequency macroeconomic indicators.
- **Implementation:** Implemented and ablated **Temporal Fusion Transformers (TFT)** against LSTM baselines; engineered distinct embedding layers for endogenous vs. exogenous features.

Publications

- Vanani, P., Patel, D., **Khorami, D.**, Munaganuru, S., Reddy, P., Reddy, V., Raghunath, B., Kidané, A., & Gowda, T. *Mesquite MoCap: Democratizing Real-Time Motion Capture with Affordable, Open-Source, Networked IMU Hardware and WebXR.* **(Submitted to IEEE)**.

Computational Media & Interactive Systems

To Wilt Distributed IoT & LLM-Driven Affective Computing System
MFA Thesis System Architecture *2025–Present*

- **Research-driven installation** exploring long-horizon LLM-to-LLM dialogue and computational representations of affect, connected to real-time media outputs.
- **Built an end-to-end pipeline**: curated a ∼22k-image rose-decay dataset, designed multi-voice prompting/evaluation structure, and deployed live interfaces (web + Raspberry Pi + networked dot-matrix printers).

Happenstance Image-to-Avatar Pipeline for Virtual Worlds *Spring 2025*

- **Built a pipeline** transforming single photographs into rigged 3D characters for virtual environment integration.
- **Leveraged PiFUHD** for high-resolution 3D human reconstruction; automated rigging workflows with Mixamo to iterate toward a rapid end-to-end prototyping tool.

Experience

Instructor of Record, Arizona State University *Fall 2024–Present*

ART 122 — Introduction to Photography II (Fall 2025; Spring 2026, two sections)
ART 310 — Landscape Photography (Fall 2025)
ART 121 — Introduction to Photography I (Spring 2025)
ART 116 — Intro to Digital Media (Spring 2024; Summer 2025, two sections)

Graduate Research & Teaching Assistant, Northlight Gallery & School of Art, ASU *Aug 2023–Spring 2025*

Northlight Gallery: collections support; assisted curation, installation, and public programs.
Teaching Assistant: Intro to Photography I (Fall 2024); Photography (Fall 2023).

Technical & Artistic Skills

Programming & Data	Python (NumPy, Pandas, Matplotlib, Jupyter); PyTorch, basic TensorFlow/Keras, scikit-learn; OpenCV, torchvision; basic experience with temporal/attention models (LSTM, TFT); Linux (Ubuntu), SLURM, conda/mamba, HPC workflows.
Embedded & Hardware	ESP32, Arduino ecosystem; IMU sensors (accelerometer, gyroscope), basic sensor fusion; IoT prototyping, serial/network communication (MQTT/UDP/TCP).
Imaging, 3D & XR	Blender (including geometry nodes); motion capture workflows (BVH export, rigging pipelines).

Fellowships, Awards, and Honors

Arizona State University	**2023–2026: Tuition Awards, ASU**; 2024: Fellowship, Anderson Ranch Arts Center Residency, Colorado, USA.

Selected Group Exhibitions

Smile You Are on Camera, Northlight Gallery, Phoenix 2025
SPE Northwest Conference: Renewal, Mt. Hood Community College, Oregon 2024
Phoenix Transect, Northlight Gallery, Phoenix 2024
Fieldnotes, Harry Wood Gallery, Tempe 2024
Galbirt Prize Exhibition, Gallery 100, Phoenix 2024
Group Exhibition, Harry Wood Gallery, Phoenix 2023

Education (Iran)

Iran University of Art , Tehran, Iran 2023
M.A. in Photography (Media & Image Theory), **GPA 18.35/20 (A; WES: 16–20 = A)**
Thesis: The Representation of the Environment in Photographic Images: An Image-Theoretical Study. (Jan 2023)

University of Applied Science and Technology, Arak, Iran 2020
B.A. in Graphic Design, **GPA 18.66/20 (A; WES: 16–20 = A)**

Fellowships, Awards, and Honors (Iran)

Tehran University of Art, Tehran, Iran	2020–2023: Tuition Awards, TUA; 2019: **Ranked 19th among ∼54,000 candidates in National Entrance Exam (Graduate College)**; full tuition waiver.