Tanish Baranwal

510-480-7799 | tanish@berkeley.edu | linkedin.com/in/btanish | github.com/tekotan | Google Scholar

EDUCATION

University of California, Berkeley — Aug. 2022 – May 2025
Bachelor of Science in Electrical Engineering and Computer Sciences — *Cumulative GPA: 3.98/4.0*

- **Relevant Coursework** Probability and Random Processes, Deep Neural Networks, Efficient Algorithms and Intractable Problems, Graduate Level Computer Vision, Operating Systems and System Programming, Physics-Inspired Machine Learning, AI for Biology and Chemistry, Algorithmic Aspects of Machine Learning
- **Organizations:** Spring 2025 President, Eta Kappa Nu (EECS Honor Society), Venture Strategy Solutions

EXPERIENCE

Berkeley Artificial Intelligence Research — Sep 2024 – Present
Undergraduate Researcher — *Berkeley, CA*

- Developed **Video Gaussian Masked Autoencoders**, a self-supervised video model that uses **3D Gaussian primitives** to learn explicit spatiotemporal correspondences via masked reconstruction.
- Introduced a **correspondence-aware pretraining strategy** enabling **emergent zero-shot point tracking**, achieving **state-of-the-art** gains on TAP-Vid Kinetics (**+4.16%**), DAVIS (**+37.4%**), and Kubric (**+13.1%**).
- Advised by **Professor Jitendra Malik**; worked with Jathushan Rajasegaran and submitted to NeurIPS 2025.

Amazon — May 2024 – Aug 2024
Software Development Engineer Intern — *Seattle, WA*

- Ensured product listing consistency on the Amazon storefront as part of the Catalog Normalization team by incorporating LLMs in their workflow by developing a proof of concept and presenting it to the entire team.
- Developed an LLM application to generate footwear size attributes for **100,000+** products on the Amazon catalog using Amazon Bedrock, prompt engineering, and chain of thought prompting, achieving **85%** accuracy.
- Leveraged Amazon native AWS pipelines to automate the LLM agent to work with the catalog scale of **100 million** items using Lambda, S3, Apache Spark and AWS EMR, and Bedrock APIs and optimized for costs and efficiency.

eGolf.ai — Jan 2022 – Present
Co-Founder and Chief Technology Advisor — *Saratoga, CA*

- Designing an algorithm using Fourier Transform and CNNs to analyze golf swing data and predict statistics and used RANSAC, Kalman Filtering, and Pose2Sim to calculate athlete poses from video and motion sensors.
- Building scalable data pipelines on AWS infrastructure using S3, DynamoDB, and Lambda, efficiently managing collection of **50+ TB** of multimodal swing data from 500+ users over **50,000** sessions.
- Leading recruitment by screening **500+** resumes, hiring three high-performing interns, managing data-collection protocols, and submitting four patent applications to protect core analysis technologies.

Cardiac Vision Labs, University of California, San Francisco — Sep 2022 – Present
Computer Vision Researcher — *San Francisco, CA*

- Designing novel diffusion-based generative models for cardiac excitation-wave simulation, achieving state-of-the-art performance in 3D wave imaging, arrhythmia diagnostics, and precise initial-condition modeling.
- Optimizing computational simulations of the Aliev-Panfilov cardiac model in C++, using OpenMP and multi-threading techniques to accelerate simulation speed by **37%**, significantly enhancing training-data.
- Published research paper detailing a **state-of-the-art** 3D cardiac depth-reconstruction model (achieving **87%** accuracy) in AIP Journal of APL Machine Learning and presented at Computing in Cardiology 2023.

PUBLICATIONS

Baranwal, T., Lebert, J., & Christoph, J. (2024). Dreaming of Electrical Waves: Generative Modeling of Cardiac Excitation Waves using Diffusion Models. *APL Machine Learning.* https://doi.org/10.1063/5.0194391
Baranwal, T., Varada, S., Das, S., & Haider, M. R. (2024). Fault-Tolerant IoT System Using Software-Based "Digital Twin." *10th IEEE World Forum on Internet of Things.*

SKILLS AND INTERESTS

Skills: Python, C++, Matlab, Java, JAX, OpenCV, XGBoost, TensorFlow, PyTorch, Docker, AWS, MongoDB
Interests: Bodybuilding, Basketball, Football, Brooklyn 99, Swimming, Going to Concerts, Mixology, Baking