Subash Katel

CONTACT
INFORMATION

skatel@ucsd.edu

EDUCATION

University of California San Diego, La Jolla, CA
B.S. in Computer Science   March 2025

RESEARCH
EXPERIENCE

Duarte Lab, UC San Diego

Undergrad Researcher

Applying self-supervised learning for analyzing jets in high-energy physics. Developed Jet-based Joint Embedding Predictive Architecture (J-JEPA) to learn augmentation-independent representations of jets.

ACT Lab, UC San Diego

Undergrad Researcher

Developed key compiler tools, including custom visualization for intermediate representations (IR) and a converter transforming PyTorch models to the custom Fhy language, enhancing debugging efficiency and enabling seamless integration between high-level ML models and hardware-specific languages.

Harvard Edge Lab, Harvard University

Undergrad Researcher

Exploring the application of Generative AI and large language models (LLMs) for hardware design automation across various languages.

Kastner Research Group, UC San Diego

Undergrad Researcher

Evaluating the viability of repurposed smartphones (Google Pixel Fold) for hosting containerized EdTech applications, analyzing performance for Jupyter notebooks and PrairieLearn, with the goal of creating sustainable, low-carbon educational computing environments.

CONFERENCE
PRESENTATIONS

Subash Katel*, Haoyang Li*, Zihan Zhao*, Javier Duarte. 2024. Learning Symmetry-Independent Jet Representations via Jet-Based Joint Embedding Predictive Architecture. Paper to be presented at the *ML4Jets Workshop*, Paris, France and the *NeurIPS Workshop on Machine Learning for Physical Sciences*.

Switzer, J., **Katel, S.**, Lee, J. C., Rajan, A. R. A., Kastner, R., Pannuto, P. 2024. Reducing the Carbon Footprint of EdTech with Repurposed Devices. Poster to be presented at the *MICRO Conference Workshop*.

PROJECTS

Cuda to OpenCL Conversion
Open-sourced and migrated UCSD's Parallel Programming curriculum from NVIDIA CUDA to OpenCL.

UAV Search & Report
Developed a proof-of-concept UAV system for autonomous surveying and object detection in Search and Rescue (SAR) missions, using off-the-shelf components and existing software frameworks.

WORKING
EXPERIENCE

San Diego Supercomputer Center, San Diego, CA

Software Engineering Intern   June 2021 - September 2021

Worked on various software development projects, focusing on mobile applications, implemented iOS applications using React.js and JavaScript, collaborating closely with the design team to ensure a seamless user experience based on client feedback.

Awards

NSF Empower Scholarship, UC San Diego	2023 - 2025
Empower Research Scholarship, UC San Diego	2024
NSF REU Pannuto Summer Scholarship, UC San Diego	2024
Richard L. and Fern W. Erion & Laidlaw-Erion Scholarship, UC San Diego	2023

Teaching Experience

Saddleback LRC, Saddleback College, Mission Viejo, CA

Volunter CS Tutor

Supported students through personalized tutoring on programming concepts and the temporal organization of their coursework related to the Computer Science program.

Skills

- Programming Languages: Python, C++, CUDA, OpenCL
- Hardware Description Languages: Verilog
- Tools & Frameworks: Pytorch, Docker, Kubernetes,