Subash Katel

CONTACT INFORMATION

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subashkatel.com

EDUCATION

Princeton University, Princeton, NJ
Ph.D. in Computer Sciences — Aug 2025 -

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

RESEARCH EXPERIENCE

Harvard Edge Lab, Harvard University

Research Assistant, Prof. Vijay Janapa Reddi — May 2024 - present
Exploring the application of Generative AI and large language models (LLMs) for hardware design automation across various languages.

ACT Lab, UC San Diego

Research Assistant, Prof. Hadi Esmaeilzadeh — Apr 2024 - Jun 2025
Developed key compiler tools, including custom visualization for intermediate representations (IR) and a converter transforming PyTorch models to the custom Fhy language, enhancing debugging and enabling integration between high-level ML models and hardware-specific languages.

Kastner Research Group, UC San Diego

Research Assistant, Prof. Ryan Kastner — Jan 2024 - Jun 2025
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.

Duarte Lab, UC San Diego

Research Assistant, Prof. Javier Duarte — Jan 2024 - Jun 2025
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.

Muscle Physiology Lab, UC San Diego

Research Assistant, Prof. David Berry — Dec 2023 - Sept 2024
Implemented and trained UNet architecture for automated spine muscle segmentation in MRI data, improving analysis efficiency for Naval Health Research Center's (NHRC) Warfighter Performance study.

PUBLICATIONS, PRESENTATION

Katel, S.*, Li, H.*, Zhao, Z.*, Duarte, J. (2024). Learning Symmetry-Independent Jet Representations via Jet-Based Joint Embedding Predictive Architecture. Presented at *ML4Jets Workshop*, Paris, France and *NeurIPS Workshop on Machine Learning for Physical Sciences*, Vancouver, Canada.

Switzer, J., **Katel, S.**, Lee, J. C., Rajacn, A. R. A., Kastner, R., & Pannuto, P. (2024). Reducing the Carbon Footprint of EdTech with Repurposed Devices. Presented at *MICRO, The 15th International Green and Sustainable Computing Conference (IGSC) Workshop and at joint Google/UCSD summit* .

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

Excellence in Research Award, UC San Diego	2025
Offered Sloan Foundation Scholarship & UCEM Fellowship (Duke; declined)	2025
NSF Empower Scholarship, UC San Diego	2023 - 2025
Empower Research Scholarship, UC San Diego	2024
UCSD Travel Grant - ML4Jets Conference	2024
CSE Travel Grant - ASPLOS Conference	2024
NSF REU Pannuto Summer Scholarship, UC San Diego	2024
Jacobs School Student Travel Fund - NeurIPS, UC San Diego	2024
Richard L. and Fern W. Erion & Laidlaw-Erion Scholarship, UC San Diego	2023

Teaching Experience

Teaching Assistant, UCSD, CA

CSE 160 Parallel Programming Jan 2025 - Mar 2025

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.

Outreach

SASE Student Chapter, Saddleback College, Mission Viejo, CA

Co-Founded and Led an organization that promotes and supports diversity to underrepresented minorities on campus through professional development workshops in a broad spectrum of Computer Science & engineering disciplines.

ACM Student Chapter, Saddleback College, Mission Viejo, CA

Connected the chapter to external organizations for pro-bono software development services and acted as a liaison for guest speakers and local business opportunities.

Society of American Military Engineers, Saddleback College, Mission Viejo, CA

Developed the community-based mentorship program in the chapter that matches transfer-ready students with first-year students to promote STEM awareness and success.

Skills

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