

# Subash Katel

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## CONTACT INFORMATION

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(949) 357 - 4987  
[subashkatel.com](http://subashkatel.com)

## EDUCATION

**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*

April 2024 - present

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.

### **Kastner Research Group, UC San Diego**

*Research Assistant, Prof. Ryan Kastner*

Jan 2024 - present

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 - present

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, Dr. 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

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 - March 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,