

Samar Karanch

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EDUCATION

University of California San Diego

Master of Science in Computer Science

La Jolla, CA

Aug. 2025 – May 2027

University of Central Florida

Bachelor of Science in Computer Science (GPA: 3.95/4.00)

Orlando, FL

Aug. 2021 – May 2025

EXPERIENCE

AI Engineer Intern

Soar Tech

June 2025 – September 2025

Orlando, FL

- Fine-tuned three ModernBERT models via Hugging Face transformers for NER tasks and improving extraction accuracy for domain specific entities
- Utilized Docling to extract unstructured text from PDFs and convert it into structured, machine-readable formats for downstream processing
- Developed data pipelines leveraging the OpenAI API to extract and structure 60,000+ data points from unstructured PDFs for ModernBERT NER fine-tuning
- Integrated fine-tuned ModernBERT models into a backend system with FastAPI and PostgreSQL, enabling scalable inference and seamless data storage/retrieval

Undergraduate Research Assistant

Sage Lab, University of Central Florida

March 2024 – August 2025

Orlando, FL

- Worked on accessibility research project which uses AI to identify accessibility issues in UI/UX design and utilize GitHub and Stack Overflow APIs to generate labels
- Developed ground truth dataset using over 70,000 json metadata and jpeg images that will help the AI models predict accessibility issues in the underlying UI
- Processed images to for text size, text contrast, and image contrast for creating ground truth dataset
- Utilized using python, opencv, scikit, google ocr, and pillow tools to build this deliverable

PROJECTS

Lady Bug | *Python, Flask, MongoDB*

August 2024 – May 2025

- Enhanced bug localization accuracy through a GitHub bot utilizing bug report and source code embeddings augmented with user interface data (novel approach), achieving a 10% relative improvement in bug finding
- Led database development using MongoDB to store embeddings, and associated metadata
- Advanced research merits by experimenting with 5+ frontier LLMs resulting in a 15% increase from the previous methodology
- Awarded a \$250 scholarship, Judge's choice award at Student Research Symposium, College-wide showcase finalist, and accepted to ICSME 2025 conference in Auckland, New Zealand

Focus Flow | *Next.js, React, TypeScript, Tailwind CSS, Firebase*

August 2023 – December 2023

- Developed a full stack planner app to help users efficiently organize and track daily activities
- Collaborated with 4 developers and lead back-end, middleware, and database development
- Created and utilized REST APIs for efficient CRUD operations on the Firebase database

TECHNICAL SKILLS

Technical Skills: Python, C, Java, JavaScript, TypeScript, Html, CSS, React, Firebase, Next.js, Tailwind CSS, Git, GitHub, Bootstrap, Postman, Pytorch, Pandas, NumPy

Relevant Coursework: Data Structures and Algorithms, AI, Software Engineering, Computer Vision, Calculus (1-3), Discrete Math, Linear Algebra, Differential Equations (1-2)

PUBLICATIONS

- [1] J. Mahmud, J. Chen, T. Achille, *et al.*, *Ladybug: A github bot for ui-enhanced bug localization in mobile apps*, 2025. arXiv: 2508.05085 [cs.SE]. [Online]. Available: <https://arxiv.org/abs/2508.05085>.