

PRATHAMESH KHOLE

Graduate Student

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🌐 prathameshkhole.github.io

Education

University of California Santa Cruz

Master of Science in Computer Science and Engineering

September 2022 – Present

Santa Cruz, California

Pune Institute of Computer Technology (University of Pune)

Bachelor of Engineering in Computer Science

August 2017 – May 2021

Pune, India

Experience

University of California Santa Cruz

Research Assistant

January 2023 – Present

Santa Cruz, California

- Working under guidance of Professor **Razvan Marinescu** as a part of his lab at UCSC.
- Worked with **python** frameworks including **PyTorch** and **Numba** to reverse diffusion Magnetic Resonance Imaging (MRI) process.
- Developed and implemented **physics based biomedical image simulators** replicating state of the art models in performance.

University of California Santa Cruz

Teaching Assistant

January 2023 – Present

Santa Cruz, California

- Conducted lab sessions for **CSE-12 Computer Systems and Assembly Language** ensuring comprehensive coverage of key concepts. Demonstrated the design and creating of intricate circuits using **Digital Logic** and **Boolean Algebra** principles.
- Delivered in-depth instruction on **RISC-V** Assembly Language, equipping students with the knowledge and skills to navigate and apply programming fundamentals to assembly language effectively.

ZS Associates

Business Technology Solutions Associate

August 2021 – June 2022

Pune, India

- Used **Python**, **PySpark**, and **HiveQL** to revolutionize the preprocessing workflow, **achieving over 90% time reduction**, ensuring data is correctly prepared for machine learning applications.
- Through meticulous data analysis and refining **SQL** queries in workflow, crafted more targeted recommendation algorithms, resulting in an approximate **10% improvement in suggestion reach**.
- Utilized **SQL** and **HiveQL** for efficient data extraction in production, ensuring seamless integration into the machine learning model.
- Designed and integrated a **dynamic dashboard to visualize sales and customer engagement metrics**, providing actionable insights for client decision-making and strategy optimization.

Schneider Electric Systems Middle East

Project Intern

June 2019 – August 2019

Al-Ahmadi, Kuwait

- Spearheaded comprehensive testing initiatives to ensure Process Graphics functionality was in perfect alignment with project specifications and requirements.
- Performed validations of database, ensuring the Database configuration adhered strictly to input specifications, guaranteeing data accuracy and reliability.

Projects

Differentiable Diffusion Magnetic Resonance Imaging

University of California Santa Cruz

March 2023 – Present

Created a differentiable framework in **Python** for both acquiring diffusion MRI signals from brain shapes or meshes and reconstructing these structures from the signals. This involved developing a physics-based simulator that accurately replicates the MRI signal acquisition process, in line with advanced models.

Philanthropy on Blockchain (Ethereum Based DApp)

Pune Institute of Computer Technology (University of Pune)

July 2020 – May 2021

Developed a **Ethereum blockchain-powered decentralized app** for transparent, secure donation management with vote-based approval. Features include complete donation tracking and donor refund options for low trust votes. Implemented using **Solidity** on the **Ropsten Network**, with **NextJS**, **ReactJS**, and **GraphJS** for the frontend.

Technical Skills

Languages: Python, C++, R, SQL, RISC-V, HiveQL, Java.

Developer Tools: VS Code, Google Cloud Platform, Android Studio.

Technologies/Frameworks: Linux, PyTorch, Transformers, Ethereum, AWS S3, GitHub, WordPress, Gradescope.