

SUDHANSH PEDDABOMMA

+1 (858)-518-9808 | @speddabomma@ucsd.edu | sudhansh6.github.io | in sudhansh-peddabomma | sudhansh6

EDUCATION

- University of California San Diego** Sep 2023 - Jun 2025
Master of Science in Computer Science and Engineering **GPA 4.00/4.00**
▪ Key Courses - Robotics, Recommender Systems, Quantum Cryptography, Convex Optimization
- Indian Institute of Technology Bombay** Jul 2019 - Jul 2023
Bachelor of Technology with **Honors** in Computer Science and Engineering, Minor in **Entrepreneurship** **CPI 9.66/10**
▪ Key Courses - Computer Vision, Reinforcement Learning, Image Processing, Machine Learning and Deep Learning

EXPERIENCE

- Data and Applied Scientist Intern | Microsoft India** May 2022 - Jul 2022
▪ Developed a **decision-tree ranker** for Outlook to suggest emails to users based on their past interactions with no query
▪ Engineered a dataset by extracting user-dependent email attributes from context logs in a large-scale data pipeline
▪ Demonstrated an optimized ranking model using hierarchical feature sets, resulting in higher recall and click rate
- Software Engineering Intern | FinIQ Consulting** Nov 2021 - Apr 2022
▪ Enhanced the firm's trading platform by integrating **pricing models for options** and performed unit tests for deployment
▪ Designed a parser using Python to verify the format in email transactions, lowering the trade-discard rate **up to 15%**
▪ Deployed pricing strategies such as Black-Scholes and Heston models with **Monte Carlo simulations** on the platform

PUBLICATIONS

- S. Peddabomma, S. Banerjee, R. Srivastava, A. Rajwade, A likelihood based method for compressive signal recovery under Gaussian and saturation noise** in Signal Processing 2024 DOI: 10.1016/j.sigpro.2023.109349
- S. Peddabomma, M. Betcke, A. Hauptmann, W. Hong, E. Macneil, K. Rullan, Learned Stochastic Primal Dual for large scale and fully 3D tomographic reconstruction** *Special Issue IOP 2023 (preprint)*

RESEARCH PROJECTS

- 3D Perception for Home Robots** Sep 2023 - Present
Graduate Student Researcher, *Supervisor: Prof. Henrik Christensen*
▪ Implemented dense SLAM algorithms with **NeRFs** and **Gaussian Splatting** for real-time 3D scene reconstruction
▪ Developed real-time **object segmentation** and 3D mapping methods for receptacle detection and grasp pose estimation
- Image Reconstruction in Saturated Compressed Sensing** | [REPORT] Jul 2022 - Jun 2023
Bachelor's Thesis, *Supervisor: Prof. Ajit Rajwade, IIT Bombay* Bachelor Thesis Project
▪ Proposed a novel likelihood maximization technique to recover **signals, images, and audio** from compressed measurements and obtained **20% lower RMSE** over the state of the art methods even with high saturation effects
▪ Established robust performance guarantees with statistical methods and published a journal paper on this work
- 3D Tomography with Primal-Dual Neural Networks** May 2021 - Jul 2023
UCL Research Internship, *Supervisor: Prof. Marta Betcke, University College London*
▪ Developed a stochastic neural-network architecture of primal-dual algorithm for **online reconstruction of 3D volumes** from tomographic projections and obtained **99.6 % structural similarity** in challenging low-dosage conditions
▪ Built a Python library with custom network layers in Tensorflow for reconstruction using cone-vector tomography

KEY PROJECTS

- Image Colorization GAN.** Deployed a web-app to color grayscale images using pix2pix **U-Net architecture** GAN
- Sudoku Solver.** Created an **Augmented Reality** app to solve Sudoku from live feed, with robust real-time performance
- Autonomous Robot.** Developed a Roomba-like robot with **visual-SLAM** using EKF and A* path planning on ROS
- Red Plag.** Deployed a web-app for checking plagiarism between scripts using Latent Semantic Analysis and TF-IDF

SKILLS

Programming C++, C, Python, MATLAB, Java, Bash, VHDL, SQL, HTML, Javascript
Tools & Software PyTorch, ROS, TensorFlow, scikit-learn, OpenCV, Angular, Matplotlib, Arduino, Raspberry Pi
Expertise in Computer Vision, Artificial Intelligence, Image Processing, Algorithms, Statistical Modeling

AWARDS AND LEADERSHIP

- Teaching Assistant, UC San Diego** | *Quantum Cryptography, Theory of Computing* Jan 2024 - Present
- Team Leader at Exofly** | *Tech Team IITB* Mar 2022 - Apr 2023
 - Led a **40-member team** and secured funding to design a safe and compact manned **eVTOL aerial vehicle**
 - Designed a controller on **Simulink**, performing **sensor fusion** for localization with an **Extended Kalman Filter**
- Secured **3rd** rank in **Statistics Olympiad** conducted by C.R. Rao AIMSCS across India and Sri Lanka (2019)