

# SUDHANSH PEDDABOMMA

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## 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
- 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 target redemption forwards
- 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)

## KEY 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 point cloud mapping methods for precise 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

## OTHER 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

## SKILLS

Programming	C++, C, Python, MATLAB, Java, Bash, VHDL, SQL, HTML, Javascript
Tools & Software	PyTorch, ROS, TensorFlow, Jax, OpenCV, CUDA, 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** 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 the prestigious **KC Mahindra** scholarship of INR 500,000 for post-graduate studies (2023)
- Secured **3rd** rank in **Statistics Olympiad** conducted by C.R. Rao AIMSCS across India and Sri Lanka (2019)