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
- 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 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

1. **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
2. **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
- Developing a robust mesh-completion algorithm for 3D object detection during manipulation of items

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)