

SUDHANSH PEDDABOMMA

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EDUCATION

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

EXPERIENCE

- MICROSOFT INDIA (R&D) PVT. LTD.**, Data and Applied Scientist Intern May 2022 - Jul 2022
Zero Query Email Suggestions
 - Developed a **Decision-Tree ranker** to recommend email entities with no search input on **Outlook** to increase click rate
 - Optimized the Outlook email preference ranker by enhancing the existing hierarchical feature set used for ranking
- FINIQ INDIA PVT. LTD.**, Software Engineering Intern Nov 2021 - Apr 2022
Backsolving Pricing Models and Financial Markup Language
 - Enhanced the firm's trading platform by integrating **Black-Scholes** and **Heston Stochastic Local Volatility** models
 - Applied **Monte Carlo simulations** to accurately price vanilla and barrier options, and target redemption forwards
 - Designed a versatile markup language for verifying price quotes, lowering the trade discard rate significantly

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 AND KEY PROJECTS

- 3D PERCEPTION FOR HOME ROBOTS** Sep 2023 - Present
Supervisor: Prof. Henrik Christensen, UC San Diego
 - Developing a robust object mesh-completion algorithm for bounding box estimation during manipulation of items
 - Implementing dense-SLAM with **Neural Radiance Fields** and **Gaussian Splatting** for real-time scene reconstruction
- LIKELIHOOD MAXIMIZATION FOR SATURATED COMPRESSED SENSING** [REPORT] Jul 2022 - Jun 2023
 - Proposed a novel likelihood-based approach to reconstruct **signals, image and audio** from saturated measurements
 - Utilized advanced statistical modeling techniques to guarantee performance and conducted extensive experiments
 - Obtained **15% lower RMSE** as compared to state of the art methods even with high saturation levels
- 3D TOMOGRAPHY WITH PRIMAL-DUAL NEURAL NETWORKS** May 2021 - Jul 2023
 - Developed a stochastic **Learned Primal-Dual** algorithm for **online** reconstruction of 3D volumes from CT scans
 - Created a Python library to conduct experiments on **cone-vector** tomography with custom Tensorflow layers
 - Achieved remarkable results, including up to **99.6%** structural similarity, under challenging **Low-Dose conditions**
- IMAGE COLORIZATION APPLICATION** [CODE] [APP] May 2021 - Jul 2021
 - Developed and **deployed** a **Pix2Pix GAN** web-application to transform grayscale images to colored ones
 - Implemented a **U-Net architecture** for the generator and utilized **patch discriminator** for effective translation
 - Created a real-time **Augmented Reality** Sudoku Solver app with robust performance in various environments

SKILLS

- Programming** C++, C, Python, MATLAB, Java, Bash, VHDL, SQL, HTML, Javascript
Tools & Software Docker, ROS, OpenCV, TensorFlow, PyTorch, CUDA, Node, Angular, Matplotlib, Arduino, Raspberry Pi
Expertise in Computer Vision, Reinforcement Learning, Statistical Modeling, Image Processing

ROLES AND ACHIEVEMENTS

- Teaching Assistant, UCSD** | 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 manned, compact, and lightweight **eVTOL vehicle**
 - Designed a controller on **Simulink**, incorporating fail-safes and **sensor fusion** 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 **AIMSCS** across India and Sri Lanka (2019)