

Parth Agrawal

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Education

University of California, Los Angeles

September '18 – June '22

Bachelor of Science, Computer Science and Engineering | GPA: 3.78

Relevant Courses: Data Structures, Algorithms, Signals and Systems, Linear Algebra, Probability and Statistics, Machine Learning, Deep Learning, Data Mining, Computer Vision, Reinforcement Learning, Computer Graphics

Skillset

Languages: Python, C, C++, Bash

Tools and Frameworks: PyTorch, TensorFlow, OpenCV, Eigen, Ceres, NumPy, Scikit-learn

Work Experience

Software Engineer III, Google

August '22 – Present

- Core contributor of Visual Inertial Odometry which powers Add Me feature on Pixel 9 and enables augmented reality experiences on over 1 billion Android devices through ARCore.
- Collaborated with other organizations within Alphabet such as Wing to deploy and maintain motion tracking stack.
- Explore research and development on SLAM and 3D vision.

Undergraduate Researcher, Vision Lab

May '21 – June '22

Advised by Dr. Stefano Soatto and Dr. Alex Wong

- Proposed Stereoscopic Universal Perturbations, a single set of imperceptible image perturbations generalizable across networks and datasets, that can corrupt deep stereo-matching networks. Further discovered architectural designs to improve the robustness of networks against attacks from adversarial perturbations.
- Developed Monitored Distillation method to improve upon knowledge distillation for self-supervised monocular depth completion task (to infer dense depth map from RGB image, intrinsics, and sparse depth map). The method achieved state-of-the-art accuracy on public depth completion benchmarks against other self-supervised methods.
- Implemented triangulation in XIVO, an open-source Visual Inertial Odometry system, using C++. [Link](#)

Undergraduate Researcher, Laboratory for Embedded Machines and Ubiquitous Robots

July '20 – April '21

Advised by Dr. Ankur Mehta

- Developed communication pipeline for manual control of lighter than air vehicles in python and C++ using ESP8266 microcontrollers and ESP Now protocol.
- Deployed on-device random forest and neural networks for image classification on ESP32 microcontrollers using TensorFlow lite.
- Built and maintained pipelines for training CNN models for on-device monocular depth estimation. [Link](#)

Computer Vision Intern, Tata Singapore Airlines

July '20 – September '20

- Trained CNN and LSTM based face recognition models for vision-based identity verification at airports using PyTorch.
- Developed a prototype for handwritten text recognition to automate document processing using Tesseract.

Kiosk Manager and Web Developer, UCLA Athletics Hall of Fame

October '19 – June '20

- Provided technical support and maintained a database of student-athletes using shell scripts, MySQL, and Swift.

Software Engineering Intern, Fuzzy Logix

July '19 – August '19

- Created a framework to detect fraudulent transactions using graph algorithms.
- Developed pipelines in SQL to preprocess data, apply graph algorithms, and visualize the network of transactions.

Publications

- Tian Yu Liu*, **Parth Agrawal***, Allison Chen*, Byung-Woo Hong, and Alex Wong. “Monitored distillation for positive congruent depth completion”. In European Conference on Computer Vision, pp. 35-53. Springer, Cham, 2022. (* Equal Contribution) [Link](#)
- Zachary Berger*, **Parth Agrawal***, Tian Yu Liu, Stefano Soatto, and Alex Wong. “Stereoscopic Universal Perturbations across Different Architectures and Datasets”. In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition, pp. 15180-15190. 2022. (* Equal Contribution) [Link](#)
- Tong Ke, **Parth Agrawal**, Yun Zhang, Weikun Zhen, Chao X Guo, Toby Sharp, Ryan C Dutoit. “PC-SRIF: Preconditioned Cholesky-based Square Root Information Filter for Vision-aided Inertial Navigation”. Submitted to International Conference on Robotics & Automation 2025. [Link](#)