**Brian Park**

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**EDUCATION**

**Carnegie Mellon University, School of Computer Science December 2025**

*Master of Science in Computer Vision Pittsburgh, PA*

* **GPA: 4.33/4.0**; Computer Vision, Robot Learning, Visual Learning and Recognition, Robot Localization and Mapping, F1Tenth Autonomous Racing

**University of California, Los Angeles March 2024**

*Bachelor of Science in Computer Science and Engineering Los Angeles, CA*

* **GPA: 3.69/4.0**; Deep Learning, Machine Learning, Computer Graphics, Computer Architecture, Operating Systems

**EXPERIENCE**

**NVIDIA Santa Clara, CA**

*Perception Software Engineer Intern, Autonomous Vehicles May 2025 – Present*

*Perception Software Engineer Intern, Autonomous Vehicles May 2024 – Aug 2024*

* Integrated a Bird’s Eye View (BEV) semantic segmentation model for parking edge detection into ParkNet Deep Neural Network (DNN), achieving a 0.98 DICE score using PyTorch, OpenCV.
* Utilized Meta AI’s Segment Anything Model (SAM) to evaluate the geometric precision of parking space ground truth labels, driving optimized localization and data mining for parking space detection.

*Perception Software Engineer Intern, Autonomous Vehicles June 2023 – Sept 2023*

* Performed data augmentation on training data of parking spaces, generating 1.7 million scenes of Augmented Reality wheel stoppers, utilizing PyTorch, SQLite. Awarded 2nd Place at NVIDIA Global Intern Project Showcase.
* Implemented 13 Key Performance Indicator (KPI) metrics, including Intersection Over Union (IOU), Positional Error, and Hausdorff Distance, to evaluate the performance of ParkNet DNN, using NumPy, Pandas.

**Johnson & Johnson MedTech Pittsburgh, PA**

*Computer Vision Student Researcher Jan 2025 – Present*

* Enhancing vision-based algorithms for the MONARCH™ Platform Bronchoscopy and Urology products by improving endoscopic image fidelity.
* Explored spatial-temporal transformers and diffusion restoration models to inpaint endoscopic images, increased Signal-to-Noise Ratio by 12.68%.

**Structures-Computer Interaction at UCLA Los Angeles, CA**

*Undergraduate Researcher; Advisors: Prof. Jungseock Joo, Prof. M. Khalid Jawed Sept 2022 – Mar 2024*

* Devised a sampling pipeline utilizing NVIDIA Instant-NGP and Unity C# Engine to generate neural radiance field objects (NeRFs) for 3D Reconstructions of agricultural fields, achieving a 98.3% reduction in sampling time.
* Formulated mBEST Perception Algorithm to perform realtime detection of Deformable Linear Objects; Obtained groundtruth labels of the mBEST and FASTDLO dataset using OpenCV, NumPy.

**PUBLICATIONS**

* Choi, A., Tong, D., Park, B., Terzopoulos, D., Joo, J., Jawed, M., “mBEST: Realtime Deformable Linear Object Detection Through Minimal Bending Energy Skeleton Pixel Traversals”, IEEE Robotics and Automation Letters, 2023

**PROJECTS**

* A knowledge distillation framework that integrates a transformer-based backbone to a diffusion model to transfer knowledge from teacher models to student models more efficiently. Achieved a 0.94% increase in accuracy on CIFAR-100 image classification.
* A GPU-accelerated Model Predictive Path Integral (MPPI) planner on the F1Tenth autonomous racing platform, achieving a 19.1s reduction in lap time against a traditional Rapidly exploring Random Tree (RRT) planner in both simulation and on-track tests.

**SKILLS**

* Languages: Python, C++, Bash, SQL
* Technologies: PyTorch, OpenCV, NumPy, Tensorflow, Pandas, Unity, SQLite, Git