Brian Park

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EDUCATION

Carnegie Mellon University, Robotics Institute   **December 2025**
Master of Science in Computer Vision   *Pittsburgh, PA*
- **GPA: 4.28/4.0**; Computer Vision, Multimodal Machine Learning, Robot Learning, Visual Learning and Recognition, Robot Localization and Mapping, Learning for 3D Vision, 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 – Aug 2025*
- Implement a transformer-based architecture to convert 3D multi-camera features into 2D Bird's Eye View (BEV) space, enhancing obstacle detection for parking perception.
- Improved upon the MLP-based baseline method by increasing the average recall of hazard objects by 8.4%.

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, 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.

SKILLS

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