Brian Park

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Education

- **University of California, Los Angeles** — Los Angeles, CA
  B.S. Computer Science and Engineering; GPA: 3.66; 2021, 2022 Dean's Honor List — *Sep 2020 - Mar 2024*
  Courses: Algorithms & Data Structures, Operating Systems, Deep Learning, Machine Learning, Computer Networking, Computer Architecture

Experience

- **NVIDIA** — Santa Clara, CA
  Perception Software Engineer Intern, Autonomous Vehicles — *Jun 2023 - Current*
  - Perform data augmentation on the SQLite training dataset of parking spaces with inferred entry-line labels, led to the generation of 1.7 million scenes of Augmented Reality scenes with wheel stoppers, utilizing PyTorch, NumPy, SQLite.
  - Implement 13 Key Performance Indicator (KPI) metrics, including Intersection Over Union (IOU), Positional Error, and Hausdorff Distance, to evaluate the performance of ParkNet Deep Neural Network, using PyTorch, NumPy, Pandas.
  - Engineered a Rank-Based KPIs method to establish the optimal confidence threshold level for the ParkNet DNN, obtained by assessing the highest attainable F1-Score.
- **Structures-Computer Interaction at UCLA** — Los Angeles, CA
  Undergraduate Researcher; Advisors: Prof. Jungseock Joo and Prof. M. Khalid Jawed — *Sept 2022 - Current*
  - Devise a sampling pipeline utilizing NVIDIA Instant-NGP, Unity C# Engine, NumPy, and OpenCV to generate neural radiance field objects (NeRFs) for 3D Reconstructions of agricultural fields, achieving a 98.3% reduction in baseline sampling time.
  - Build autonomous robotics software and Computer Vision algorithms for leading research development of self driving precision agricultural robots in collaboration with the U.S. Department of Agriculture.
  - Formulated mBEST Perception Algorithm to perform realtime detection of Deformable Linear Objects; Obtained ground truth labels of the mBEST and FASTDLO dataset using OpenCV, NumPy.
- **Miravel** — Los Angeles, CA
  Software Engineer Intern — *Jan 2021 - October 2021*
  - Created subscription service with HTML, CSS, JavaScript, REST APIs for customers to edit account information and create transactions.
  - Implemented an account management system that over 360 users ordered, viewed, and edited products to purchase seeds for their autonomous indoor garden.
- **iD Tech** — Los Angeles, CA
  Academy Instructor — *Jun 2022 - Aug 2022*
  - Led iD Tech's "Machine Learning: Coding Deep Neural Networks" course to 30 high school students.
  - Guided students in training Convolutional Neural Networks on the CIFAR-10 dataset using Tensorflow and Recurrent Neural Networks for cooking recipe generation using Python, Tensorflow, pandas, BeautifulSoup.
- **Association for Computing Machinery, Artificial Intelligence at UCLA** — Los Angeles, CA
  Outreach Officer — *Oct 2020 - Sept 2023*
  - Developed and instructed a UCLA-certified machine learning curriculum weekly to cohorts of 20 students at North Hollywood High School and Girls Academic Leadership Academy.
  - Hosted "You Belong in AI," a podcast with over 1300 listeners that explores diversity and inclusion within AI, featuring leaders of artificial intelligence organizations within Google, NVIDIA, DeepMind, MITRE.

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

- Fine-tuned ResNet-18 neural network on Kaggle Cassava Leaf Disease dataset to detect different diseases on cassava leaves, a staple food source based on Uganda's National Crops Resources Research Institute. Optimized baseline model accuracy by 20% through data augmentation and transfer learning in PyTorch. (2021)
- Computer Vision web app that enhances remote learning environments by tracking a lecturer's movements and allowing live chats with students. Built with YOLOv4 object-detection algorithm, OpenCV, Firebase database. (2022)

Skills

- Languages: Python, C++, C, C#, HTML, CSS, JavaScript, Haskell, Bash, SQL.
- Technologies: PyTorch, Tensorflow, OpenCV, Unity, ReactJS, Firebase, scikit-learn, Git, Docker, SQLite, Emacs.