DAITAO XING

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Summary

Ph.D. student, expected to graduate in spring, 2023, with experience in developing machine learning models for mobile applications. Adept in various programming languages such as C++, Python, PyTorch, and TensorFlow. Experience in computer vision with publications at top AI & CV conferences. Strong analytical and problem-solving skills, with a passion for staying with cutting-edge advancements in the field.

Skills

- Python | C++ | PyTorch | TensorFlow | CUDA | ROS | OpenCV | Scikit-Learn | Pandas | Matlab | R | Keras | Git | Shell | Spark | SQL |
- AWS | Linux | Docker | Kubernetes | ONNX | TensorRT | OpenVINO | MLOps | Distributed Computing | Edge Computing | HPC | OOP |
- Data Analysis | Computer Vision | Machine Learning | Sensor Fusion | Reinforcement Learning | Robotics | English, Chinese

Education

Ph.D., Computer Science   **New York University**   *NYC, USA*   **08/2018 - Present**

- GPA: 3.91/4.0   Research Fields: **Multimodal Perception, Object detection, tracking, Depth estimation, Robotics, Edge Computing, Sensor Fusion.**

M.S., Computer Science   **New York University**   *NYC, USA*   **09/2016 - 06/2018**

- GPA: 3.74/4.0   Relevant Courses: **Machine Learning, Computer Vision, Deep Learning, Big Data, Artificial Intelligence, Web Search Engine.**

B.S., Applied Mathematics   **China Minzu University**   *Beijing, China*   **09/2011 - 06/2015**

- GPA: 3.87/4.0   Relevant Courses: **Object Oriented Programming (C++), Algorithm, Statistic Analysis, Data Analysis (Python), Data Visualization**

Experience

Computer Vision Engineer, Intern   **OPPO US Research**   *Palo Alto, CA, USA*   **05/2022 - 09/2022**

- Designed and implemented a perception framework of mobile phones for real-time depth estimation & 3D reconstruction, achieving 70 FPS on a single GPU and 6% improvement on the KITTI dataset using **PyTorch (Python), CUDA (C++), Docker, ONNX and TensorRT.**
- Designed and developed an enterprise application for mobile phones of real-time human instance segmentation & matting with only 3.5Mb model size, driving over 30 FPS on NPU using network compression, knowledge distillation and **TensorFlow**.
- Continuous Integration/Deployment Pipeline Integration, data augmentation, distributed computing, model testing & optimization.

Research Assistant   **Robotics and Intelligent Systems Control Lab**   *NYC, USA*   **09/2019 - Present**

- Designed and implemented a real-time object tracking framework, operating at 32 FPS on Intel i7 CPU, 105 FPS on GPUs, and 53% performance improvement compared with other CPU trackers using **PyTorch, ONNX, OpenCV, OpenVINO and TensorRT.**
- Integrated multiple perception modules and sensors with the surveillance platform, including real-time object detection & tracking from both visual and thermal cameras, audio localization from microphone array, using **PyTorch, C++, CUDA, ROS and OpenCV.**
- Developed perception modules facilitating robotics (Drones) to perform obstacle avoidance and path planning in unknown environments.
- Automated and optimized the data collection, augmentation, and annotation of a simulated environment using **ROS, Unity, AirSim.**

Research Assistant   **Multimedia and Visual Computing LAB**   *NYC, USA*   **06/2017 - 05/2019**

- Designed and implemented a perception module, detecting oriented text from images of street views, facilitating autonomous vehicles to perform real-time mapping, localization and other automotive services using **TensorFlow, OpenCV.**
- Implemented a detection framework to recognize and calculate distances to the drop-offs for assistance to people with disabilities.

Machine Learning Engineer   **Transwarp**   *Shanghai, China*   **06/2015 - 06/2016**

- **Transwarp Sophon:** Machine learning automation platform and Intelligent analysis tools development (**Python, R, MLOps**)

Projects

- **Self-Driving Drone:** Automated delivery in short/long distance, won **1st prize in World Challenge for Self-Driving Transport (11/2021)**
- **Web Search Engine:** A lightweight framework includes web crawlers, ranking, document similarity and clustering, query and retrieval.
- **AI Pacman:** An AI agent which supports DFS, BFS, A*, Heuristic algorithms and deep reinforcement learning (DQN).

Selected Activities & Honors

- **AAAI 23 Student Scholarship (12/2022).** • **2nd prize in UAV Competition Against Fires.** • **2nd prize in Drone vs Bird Challenge.**
- **1st prize in World Challenge for Self-Driving Transport (11/2021).** • **Invited talk "YOLO-based Object Detection and its application".**

Selected Publications

- Semantic-Aware Region of Interest Transformer for Efficient Self-Supervised Monocular Depth Estimation. **AAAI 23 (accept rate: 19.5%)**
- Siamese transformer pyramid networks for real-time UAV tracking. **WACV 21 (accept rate: 24%).**
- Drone Surveillance Using Detection, Tracking and Classification Techniques. **Springer.**