Zhuqi XIAO

Software Engineer @ Qualcomm | Problem Solver

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As a software developer with 3+ years of experience in data-driven computer vision and 5+ years in software engineering, my expertise lies in Python and machine learning, specifically focused on advancing autonomous driving technologies. Holding a master's degree in Data Science, I am skilled in problem-solving and collaboration, adept at working with large-scale codebases, and proficient in creating effective documentation. My passion and qualifications make me a highly valuable contributor to innovative technology environments.

EXPERIENCE

Now – Sep, 2022 — Software Engineer, QUALCOMM, Sweden

- Ground Truth Automation for ADAS-Related Feature Training (Goal : Reduce Manual Annotation Costs by 50%) :
  - Specialized in developing BEV- and transformer-based models for 3D object detection, integrating both single and multisensor data for improved accuracy.
  - Successfully developed and delivered innovative clustering-based algorithms for the accurate detection of elevated road structures in LiDAR point clouds, resulting in a successful handover to the client.
  - Contributed to resolving complex detection challenges, such as blockage detection and object occlusion-level detection, by combining deep learning with classical vision techniques in a cross-functional team environment.
- Key involvement in multi-sensor calibration, encompassing multi-view cameras, LiDAR, and INS, to enhance precision and operational efficiency.

LiDAR | INS | Sensor Calibration | PyTorch | Python | Docker

Sep, 2022 – Jan, 2022 — Thesis Worker, ZENSEACT, Sweden

- Investigated various methods for automatic generation of high-quality 3D lane annotations, including the use of HD maps and depth maps derived from aggregated LiDAR point clouds, to create a range of pseudo-annotation candidates for a consensus-based selection.
- Developed training for semi-supervised 3D lane detection modules, employing both centralized and federated learning approaches, utilizing the SOTA 3D-LaneNet architecture available at that time.
- Conducted research into self-supervised learning on edge devices, leveraging the abundant unlabeled data available (streams of data or videos) to enhance the performance of edge-based models.
- Successfully presented our work at the IEEE 97th Vehicular Technology Conference, which notably enhanced the company's reputation and visibility in the academic community.

Hign Definition Map | LiDAR | INS | Federated learning | Python

Jun 2019 – May 2019 — Intern, BEIJING HUAQING YUANJIAN TECHNOLOGY DEVELOPMENT CO., LTD, China

- Led the creation of a smart car prototype, controlled wirelessly and built around STM32 chips, involving PCB design, programming, and testing.
- My role as a project leader focused on managing team collaboration and overseeing project timelines.

Embedded computing systems | C++ | STM32 | Linux | PCB Design

Jun 2019 – Feb 2019 — Teaching Assistant, CHONGQING UNIVERSITY OF TECHNOLOGY, China

- Appointed as a Teaching Assistant for the Data Structures and Algorithms course due to outstanding performance.
- Responsibilities included assisting the professor with assignments, conducting office hours, and grading exams. Also managed the course's website, handling both front-end and back-end aspects.

Teaching | C++ | Data Structures | Algorithms

Projects

Oct, 2021 – Sep, 2021 | Course Project, Universeum, Sweden

Show project

- Led a preliminary study to develop an animal identification model using advanced deep learning techniques like YOLO and Faster-RCNN, involving data collection and annotation at Universeum, aimed at creating an app for easy animal identification through snapping photos.

Object Detection | Dataset annotation | PyTorch | YOLO | Faster-RCNN

Jun 2020 – Dec 2019 | Thesis Project, Chongqing University of Technology, China

Show project (in Chinese)

- Developed a multi-task convolutional neural network (MTCNN) focused on real-time recognition of tourists' facial key points and expressions. To address data privacy concerns, the model was trained on open-source datasets and subjectively evaluated on real-world data, yielding positive results. This approach allows tourist centers to effectively gauge visitor satisfaction and make timely enhancements.

Face Detection | Emotion Detection | MTCNN | Caffe

Aug 2019 – Jun 2019 | Summer Student, Chinese Academy of Sciences, China

- Contributed to a CNN-based Face Recognition project using Tensorflow, offering a unique development approach that earned recognition from the research supervisor.

Face Recognition | Tensorflow

Skills

Languages	Chinese (native), English (professional working proficiency), Swedish (learning)
Programming Languages	Python, C/C++, SQL, MATLAB, Shell
Tools	Linux, Git, PyTorch, Tensorflow, Scikit-learn, Docker, OpenCV, Open3D, NumPy, Pandas
Others	Machine (Deep) Learning, Data Visualisation, Data Analysis, LaTeX, Video Editing

Education

Aug, 2022 – Aug, 2020 | Master | Data Science and AI, Chalmers, Sweden

Main Courses : *Design of AI systems* | *Applied Machine Learning* | *Computer Vision* | *Database* | *Deep Machine Learning* | *High-Performance Computing* | *Advanced Programming*

Jan, 2019 – Aug, 2018 | International Exchange | Electrical Engineering, Korea Advanced Institute Of Science and Technology, Korea

GPA : 3.03/4

Main Courses : *Embedded Computer Systems* | *Electronic Circuits* | *Random Processes*

Jun, 2020 – Sep, 2016 | Bachelor | Electronic Information Engineering, Chongqing University Of Technology, China

GPA : 88/100

Main Courses : *Advanced Engineering Mathematics* | *Linear Algebra* | *Data Structures and Algorithms* | *Programming Structure* | *Probabilistic Theory and Statistics*