Zijian Liu

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Waterloo, ON, Canada

EDUCATION

- **University of Waterloo** — Waterloo, ON, Canada
  Master of Engineering in Electrical and Computer Engineering, 92% — *May 2019 – Aug 2020*
- **Beihang University** — Beijing, China
  Master of Engineering in Computer Technology, 85% — *Sep 2016 – Jan 2019*
- **Beihang University** — Beijing, China
  Bachelor of Engineering in Computer Science and Technology, 80% — *Sep 2012 – Jul 2016*

EXPERIENCE

- **TrunkTech Co. Ltd.** — Beijing, China
  Software Engineer (Internship) — *Sep 2017 - May 2018*
  - Built convolutional neural network models for real-time vehicle detection and pedestrian detection in autonomous driving with TensorFlow and Caffe.
  - Implemented a visual localization system for autonomous vehicles, in case that GPS signals are weak or absent, based on AprilTag, a visual fiducial system.
  - Developed a simulator to trace and replay vehicle status in HD maps using the RViz tool of ROS (Robot Operating System). This simulator is used to test the planning and decision-making system of autonomous vehicles offline.

PROJECTS

- **3D Object Detector (Master's Thesis)**: Built a real-time 3D object detector with deep learning techniques, which utilized feature fusion on RGB images and point clouds.
- **Campus News Aggregator (Server-side)**: Server-side development using Flask for a campus news aggregator. Responsible for providing RESTful APIs, database design, and the implementation of web crawlers that fetch data from the campus website.
- **mEDC (Android Application)**: Designed and developed a mobile version of an electronic data capture (EDC) system to collect clinical data in clinical trials.
- **MIPS CPU Implementation**: Implemented a multi-cycle 32-bit MIPS CPU in Verilog, supporting instructions for ALU, shifting, data loading/storing, jump and branch.
- **C0 Compiler**: Implemented a compiler in C. The compiler supports C0 language with basic functions of grammar analysis, error processing, stack management and code optimization.
- **Spotify Playlist Generator**: A project to generate and update a Spotify playlist of daily top songs automatically with web crawlers, based on an open source Python wrapper of Spotify Web API.

RELEVANT SKILLS

- **Programming Languages**: Python, C/C++, Java
- **Techniques**: Web Development (Flask, Web Crawler, Spring Framework), Relational Database (MySQL), Deep Learning (TensorFlow), Computer Vision (OpenCV, Object Detection), ROS, Data Analysis (Machine Learning, Data Visualization), Android Development, Linux, Git