

# Zijian Liu



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Waterloo, ON, Canada

## EDUCATION

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- **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

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- **TrunkTech Co. Ltd.** Beijing, China  
*Software Engineer Intern* 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

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- **Campus News Aggregator (Back End):** Back end development for a campus news aggregator using Flask with MySQL. Responsible for RESTful APIs, database design, and the implementation of web crawlers that fetch data from the campus website.
- **Spotify Charts Generator:** A full stack Node.js app to create and keep updating playlists of daily top songs for Spotify users. Built with React, Koa and Redis.
- **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.
- **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.

## RELEVANT SKILLS

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- **Programming Languages:** Python, JavaScript, C/C++, Java
- **Techniques:** Web Development (Node.js, React, Koa, Flask), Database (MySQL, Redis), Deep Learning (TensorFlow), Computer Vision (OpenCV, Object Detection), ROS, Data Analysis (Machine Learning, Data Visualization), Android Development, Linux, Git