

LI, Zheng

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Blog: <https://www.bluenote.top>

EDUCATION

University of Sheffield

Address: Western Bank Sheffield S10 2TG

Sep 2018 - Sep 2019

Major: **Advanced Computer Science (3.8/4)**

- **Core Modules and Achievement:** Object Oriented Programming and Software Design (83); Team Software Project (80); The Intelligent Web (78), etc.
- **Degree:** MSc in Advanced Computer Science (Distinction)

Jiangxi Agricultural University

Sep 2014 - Jul 2018

Address: NO.1225, Zhimin Avenue, Qingshan Lake District, Nanchang City, Jiangxi Province

Major: **Software Engineering (3.3/4)**

- **Core Modules and Achievement:** Web Development Technology (Java) (92); C Programming (80); JAVA Programming (80), etc.
- **Degree:** Bachelor of Engineering & Bachelor of Arts (English)

WORK EXPERIENCE

Yunda Express 2020.05-2021.04 Intelligent Vehicle/Warehouse Department Algorithm Engineer

Pixmoving 2021.04-2023.02 Autonomous Driving R&D Department Autonomous Driving Algorithm Engineer

INTERNSHIP EXPERIENCE

Teach & Repeat Visual Navigation using a Jaguar Robot

Dec 2019 – Jan 2020

An internship with Dr Li Sun in the University of Sheffield about autonomous mobile robots (a Jaguar robot). **Demo**

ACADEMIC EXPERIENCE

Application of Computer Vision for Biomimetic Robots (Dissertation Thesis)

MiRo Demos : Demo

A Self-supervised, Self-adaptive Model for the Next Generation Vision-based Robot Navigation (Research Proposal) 2020

Learning before Acting: A Self-Supervised and lifelong, bio-inspired active visual learning framework for Robots 2023

AWARDS & HONOURS

Distinction level *the* first term of academic year 2018-2019

Distinction level the second term of academic year 2018-2019

Qualification Certificate of Computer and Software Technology Proficiency of Software Design Engineer Aug 2023

Patent registration certificate (No. CN116630374B) May 2023

Patent registration certificate (No. CN220455529U) Feb 2024

PROJECT EXPERIENCE

Pixmoving-Sweeping Robot

March 2022- Sep 2022

- Using a robot designed for Sweeping in outdoor environment as the platform, the robot is mounted with a ZED2i stereo camera designed for detection and segmentation. Deploying YOLOv5 and Sparseinst perception algorithms through ROS with TensorRT. From data collection, data cleaning, data annotation to training is completed by myself, finally, a road curb detection module was developed based on point cloud data from LiDAR and image data from ZED2i camera.

PixKit-Pure Object Tracking System

Dec 2021- Feb 2022

- Using a PixKit Chassis as the AD platform, and the chassis is mounted with on a gimbal camera for detection and tracking. Deploying YOLOX and SiamFC++ perception algorithms through ROS middleware. Finally, reaching the goal of tracking vehicles, pedestrian and drones in real time.

Robobus

Oct 2021- Feb 2023

- Using a Pixmoving Robobus as the AD platform, and designing the architecture of mounting different perception sensors, calibrating intrinsics and extrinsics of all sensors, implementing time synchronization through hardware. Achieving pre-tests and pre-research based on mutli-camera BEV perception algorithms for 3D detection tasks. Deploying and testing a traffic signals detection module in real time, meanwhile designing the multi-modal perception framework based on Autoware.

Pixkit-Perception module based on Autoware

Apr 2021- Sep 2021

- Using a PixKit Chassis as the AD platform to deploy and test all perception algorithms in Autoware, and formed an integrated version for customers to use.

Yunda Express Delivery robot perception module

Sep 2020- March 2021

- Using a logistics robot as the AD platform, and implementing both 2D and 3D object detection modules on the ground. Finally, deploying Mask RCNN and YOLOv4 algorithms on Jetson embedded hardware by utilizing TensorRT and Deepstream engineering. All perception modules are integrated into docker containers.

3D Estimation Vision System for a robotic arm

May 2020- Sep 2020

- Using a robotic arm as the platform, and doing research on 6D pose estimation for parcels by using NVIDIA ISAAC platform to deploy in real time along the production line. Testing both PVNet and PoseCNN algorithms, finally all codes are integrated and deployed on Jetson embedded devices with using Intel realsense D435 RGB-D cameras.

2D Vision System for a Biomimetic Robot

Jun 2019- Sep 2019

- Using a robot named MiRo (in the Sheffield Robotics lab) as the platform, and mainly focus on applying computer vision algorithms on object detection, object tracking and object identification. In this project, various methods have been tested and compared to form a stable real-time system, like comparing cascade classifiers (HOG, LBP combined with SVM) with Neural Network models (MobileNet-SSD), also comparing the efficiency and features of different trackers (TLD, KCF etc.) through OpenCV APIs.
- To form an autonomous robot intercepting system, a control theory (Braitenberg vehicle) has been successfully implemented and extended to navigate a MiRo robot to intercept a moving target, simultaneously, Kalm Filter has been tested for later upgrade version.

Intelligent Website for Social Life

Apr 2019- May 2019

- A team project which is based on Node.JS Sever, Bootstrap and MongoDB database to implement a real time social website and a progressive web app. I hold the part of testing codes, writing formal documents and integrating the fore-end and back-end during the project.
- The main special feature is that this website combined with PWA (progressive web app) to share pictures, like selfie pictures. Additionally, we use WebRTC for users to upload pictures through their cameras, users can still query and store their pictures offline. Moreover, the server can be backed by a MongoDB database, and it is implemented in Express and use Ajax and socket.io, data communication is implemented using JSON. The final effect is a website more like Twitter, a sharing and social tool.

Module Analysis Website for The University of Sheffield

Feb 2019- Apr 2019

- In this team project, I am responsible for the whole back-end. This website is based on SSM (Spring SpringMVC Mybatis) and Vue.js. The back-end service is integrated through SpringBoot, and all functions are implemented by Java though IDEA, moreover, database is implemented on MySQL 5.0. To imitate the real development in companies, the whole project is completed through an Agile mode. The main goal of this project is designing a website which can help staffs in the University of Sheffield to arrange their modules and programs in each department refer to the novel requirements. All connection or relations between each module in various programs can be easily viewed through friendly UI. Teachers can discuss and arrange courses with the help of our website.

EXTRACURRICULAR ACTIVITIES

Participating in the 'UK-RAS Manufacturing Robotics Challenge' held in AMRC Sheffield

Jun 2019

- Responsible for coding to complete some simple controlling tasks through LBR iiwa.

VOLUNTEER WORK

As a volunteer in the Sheffield Half Marathon for Sheffield Scholarships

14 April 2019

As a volunteer in the practice department of the school league committee

Oct 2014- Jun 2015

- Responsible for maintaining order of the bus station weekly