Justin Chang-Qi Zhang

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Education

National Taipei University of Technology   *Taipei, Taiwan*

M.S ELECTRONIC ENGINEERING　　GPA 4.0/4.0   *Jun 2020*

- Graduate thesis: Chang-Qi Zhang and Lih-Jen Kau, Point-cloud based Dynamic Object Detection and Tracking for Autonomous Vehicles, 2020.
- Selected courses: Machine Learning, advanced digital image processing, hardware-software co-design, multimedia service in heterogeneous network environment, intelligent vehicle communication network system design, data compression, etc.

National Taipei University of Technology   *Taipei, Taiwan*

B.S ELECTRONIC ENGINEERING　　GPA 3.72/4.0   *Jun 2017*

- Selected courses: Digital image processing, data structure, computer architecture, operating system, digital signal processing, computer algorithms, computer network, electronic circuit design, principles of communications, VLSI design, FPGA system design, user interface design, etc.

Skills

Languages	C, C++, Python, Java, Javascript, HTML, MySQL, Verilog
Frameworks	ROS, TesorFlow, OpevCV, PCL, CMake, Qt, Vue.js, Django, Electron, RTOS, Mbed OS

Experience

National Taipei University of Technology - Intelligent Control Lab   *Taipei, Taiwan*

RESEARCH AND DEVELOPMENT ENGINEER   *Jun 2020 – Present*

- Contribute core features across the entire AMR system.
- Object tracking system using camera and 3D LiDar information to detect and track obstacles.
- SLAM system enables robots to localize in both indoor and outdoor environments.
- Robot power management circuit design.
- A vehicle control system connects ROS to motors communication through CAN-BUS network.
- Lead firmware development, creating robot's peripheral by STM32 MCU.
- Robots Backend management system.
- Frontend development for robots' control dashboard.

Massachusetts Institute of Technology - Media Lab   *Cambridge, MA, USA*

RESEARCH ASSISTANT   *Feb 2017 – Jan 2018*

- Integrated mapping, localization on, routing, and path planning modules for a lightweight autonomous vehicle (LAV).
- Created a new HMI component for obstacle visualization by projecting animation on the ground.
- Implemented Web APP for users calling the vehicle.
- Set up and config sensors on a vehicle, including motors LIDARs, IMU, and encoders.
- Created control interface between ROS and motor controllers for LAV.

Projects

Campus Rover　An autonomous mobile robot for campus delivery.

Charging Rover　An autonomous mobile robot for E-scooter charging service.

Persuasive Electric Vehicle (PEV)　A light-weight autonomous tricycle cooperated with MIT Media Lab.

CityHD　Digital 3D bricks for urban planning challenges.

TorqueBot　Autonomous platform for educational and service design applications.

Driver Alert System　A embedded system that is able to notify dangerous turn.

MES　A manufacturing execution systems enables company to mange and track production status.

Disinfect Map　A web service enables students to track the disinfection status of classrooms.