Ruihua Han

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EDUCATION

Master's Degree of Engineering **09/2014-06/2017**
Xiamen University
Major: Microelectronics and Solid State Electronics

Bachelor's Degree of Engineering **09/2010-06/2014**
Wuhan University of Technology
Major: Industrial Equipment and Control Engineering

RESEARCH EXPERIENCE

Automated driving system for campus bus **06/2017-present**

- Developing an automated driving system for the bus with exteroceptive sensors including LIDARs and cameras to perform autonomous navigation in the campus.
- Responsibility: algorithm for localization and mapping.

Autonomous navigation platform based on universal wheel vehicle **09/2016-06/2017**

- Developed a platform based on universal wheel vehicle to test autonomous navigation algorithm.
- Responsibilities: mechanical design, control and data collection algorithm.

Micro Piezoelectric Ultrasound Pump **09/2015-09/2016**

- Developed an ultrasound pump model based on piezoelectric material which can generate a traveling wave to drive fluid when an AC voltage is applied.
- Responsibilities: theoretical derivation, ANSYS simulation.

Micro Piezoelectric Accelerator **09/2014-09/2015**

- Developed an accelerator which can detect the charge generated from the piezoelectric material by the vibration of the mass to calculate the acceleration.
- Responsibilities: theoretical derivation, ANSYS simulation.

PUBLICATIONS

- **Ruihua Han**, Shengduo Chen, Yasheng Bu, Zhijun Lyu and Qi Hao, "Decentralized Cooperative Multi-Robot Localization with EKF" ICRA 2019. Submitted.
- Shuai Zhang, **Ruihua Han**, Wankuan Huang, Shuaijun Wang, Qi Hao, "Linear Bayesian Filter based Low-cost UWB Systems for Indoor Mobile Robot Localization" SENSORS, 2018 IEEE. Accepted.
- **Ruihua Han**, Jianyan Wang, Mahui Xu, and Hang Guo. "Design of a tri-axial micro piezoelectric accelerometer" Symposium on Piezoelectricity, Acoustic Waves, and Device Applications (SPAWDA), 2016, pp. 66-70. IEEE, 2016.
- Hui Zhou, **Ruihua Han**, Mahui Xu, et al. Study of a piezoelectric accelerometer based on d33 mode[C]// Symposium on Piezoelectricity, Acoustic Waves, and Device Applications (SPAWDA), 2016. IEEE, 2016: 61-65.
- Mahui Xu, Jianyan Wang, **Ruihua Han**, Hui Zhou, and Hang Guo. "Analytical and finite element analysis of a new tri-axial piezoelectric accelerometer." In Piezoelectricity, Acoustic Waves, and Device Applications (SPAWDA), 2016 Symposium on, pp. 71-75. IEEE, 2016.

WORK EXPERIENCE

Research Assistant **08/2017-present**

Southern University of Science and Technology

- Participate in automated driving bus project.
- Serve as a Teaching Assistant to teach students about ROS navigation.
- Write proposal for project application.

Algorithm Engineer Intern **07/2016-09/2016**

DJI-Innovations

- Developed a control algorithm based on ROS to move the unmanned aerial vehicle (M100) to assigned locations and perform task of fetching target automatically.
- Responsibilities: control algorithm, mechanical design

CONTEST EXPERIENCE

2015 ABU Robocon China ***first prize***

- Developed a robot which could play badminton with other robots.
- Responsibilities: control algorithm based on STM32; mechanical design.

2016 National Robot Creative Design Contest ***first prize***

- Designed and simulated a dental robot based on virtual force feedback technology.
- Responsibilities: mechanical design, animated simulation (SolidWorks).

2016 RoboMaster (National robot competition) ***second prize***

- Led a robotics team, and independently developed and produced a variety of robots to participate in a large-scale competition.
- Responsibilities: control algorithm and data processing based on STM32.

2017 RoboMaster (National robot competition) ***third prize***

- Led a robotics team, and independently developed and produced a variety of robots to participate in a large-scale competition.
- Responsibilities: captain of the team, flight control algorithm based on ROS.

Personal

- GPA: 3.1
- Language: IELTS 6.0
- Programming Language: C/C++, Python
- Hardware: 3D printer, CNC, Lathe Machine
- Software: Matlab, latex, ANSYS, SolidWorks, AutoCAD
- Development Platform: Linux, ROS, STM32