ZHENG Fan 郑帆

PhD candidate
Mechanical and Automation Engineering, The Chinese University of Hong Kong
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Education

- Bachelor, Mechatronic Engineering, Zhejiang University   2010-2014
- PhD, Mechanical and Automation Engineering, The Chinese University of HK   2014-201?

Research Interest

- State estimation for robotics, visual inertial navigation, visual SLAM

Project Experience

Humanoid Football Player Development   2012-2014
Zhejiang University

- Our team, *ZJUDANCER*, develops kid-size humanoid football player robots
- My work is to design robot mechanical structure, build 3D model in SolidWorks, draw machining drawings and contact with manufacturers for parts manufacturing, assemble and maintain the robots. I'm the mechanical group leader in 2013-2014
- Championship in 2013 RoboCup China; Top 8 in 2014 RoboCup in Brazil

Tactile Sensors Test Platform Development   2013-2014
Zhejiang University

- My final year project, developing a mechatronic platform with 3-D translation and 3-D rotation, which can precisely move the stimulator tip to execute test work of required motion on tactile sensors
- I worked on both the hardware and software development of the platform

Visual Motion Estimation for Ground Vehicles   2014-201?
The Chinese University of Hong Kong

- My PhD thesis topic is to develop a robust odometry/IMU assisted visual motion estimation system for navigation of ground vehicles

Working Experience

Robotics Intern   2013
Atlas Copco (Wuxi)

- Develop a robotic arm prototype for deburring compressor rotors
- Design a six-servo robotic arm model with my partner; achieve the algorithm for inverse kinematics; program in Arduino for control motion; program in Qt to create interface

Publication

Journal Papers

- **F. Zheng**, H. Tang, Y.-H. Liu. *Odometry-Vision-Based Ground Vehicle Motion Estimation With SE(2)-Constrained SE(3) Poses.* IEEE Transactions on Cybernetics, 2018. [DOI:10.1109/TCYB.2018.2831900]

Conference Papers

- **F. Zheng**, Y.-H. Liu. *A Geometric Model for Fusing IMU into Monocular Visual Localization of 3-D Mobile Robots.* IEEE International Conference on Real-time Computing and Robotics, 2016. [DOI:10.1109/RCAR.2016.7784043]
- Lu Y, Liu Y, Wang Z, **Zheng F**. *Lens-free And Portable Quantitative Phase Microscope Using A Dual-pinhole Aperture.* International Symposium on Optomechatronic Technologies. International Society for Optics and Photonics, 2015. [DOI:10.1051/matecconf/20153204002]

Teaching

- TA, MAEG 3010 Mechanics of Materials   2014/2015
- TA, MAEG 4050 Modern Control and Theory   2014/2015
- TA, MAEG 5755 Robotics   2015/2016

Social/Voluntary Work

- Student helper, IEEE ROBIO 2014 international conference   2014
- Student ambassador, HKPFS Summer Workshop of Engineering Faculty, CUHK   2015

Honors

- National Scholarship   2012
- Championship in 2013 RoboCup China, Humanoid Kidsize   2013
- Top-8 Team in 2014 RoboCup, Humanoid Kidsize   2014
- Hong Kong PhD Fellowship   2014

Skills

- Languages: Mandarin Chinese, Teochew (native); English, Cantonese (fluent)
- Programming: C++ (Qt, ROS, OpenCV, Eigen, g2o, Ceres Solver), Python, MATLAB
- Softwares: MS Office, SolidWorks; Bash, Vim, LaTeX, CMake, GDB, Git, Jekyll