Guozheng Lu

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Education

2012–2016 **B.Eng. in Automation**.
Harbin Institute of Technology, Harbin, China

Work Experience

Jul 2016 – Present **Control Algorithm Engineer**.
Da-Jiang Innovations Science and Technology Co., Ltd. (DJI-Innovations), Shenzhen, China

Jul – Aug 2015 **Student Intern**.
AVIC Beijing Precision Engineering Institute Aircraft Industry, Beijing, China

Honors and Awards

2016 **Championship in the RoboMaster 2016 season**.
For the champion team in the RoboMaster 2016 season, which was a national robotics competition in China initiated and undertaken by DJI-Innovations and jointly hosted by the Communist Youth League, All-China Students' Federation (ACSF) and Shenzhen Municipal Government.

2014 **Silver Medal in The 16th University Games of Heilongjiang**.
For the student-athletes who won the second prize in the 200-Meter Breaststroke Swimming, honored by the Heilongjiang Provence Department of Education, China.

2013 **Innovention Project Achievement Award**.
For the Project "Automatic Clothes Hanger Machine", honnerd by Harbin Institute of Technology.

Research

Sep 2017 – Present **Model Based Control for Gimbal System of Drones**.
DJI-Innovations, Shenzhen, China
Advisor: Prof. Fu Zhang
• Dynamiscs modeling on SE(3) (the special Eucliden group) for aerial manipulator with structural modes.
• Multi-joint manipulator position control on workspace.

Mar – Aug 2017 **Attitude Estimaton in Presence of Narrowband Noise**.
DJI-Innovations, Shenzhen, China
Advisor: Prof. Fu Zhang
• Developed Augmented Indirect extended Kalman filter (EKF) for the complete system integrated with manipulator kinematics, sensor models and an adaptive notch filter, which is ultilized to attenuate the narrowband noise caused by vibration and structural modes.
• Adaptive frequency estimation for accelerometer vibration noise by Least Mean Squares.

Nov 2016 – Feb 2017 **Simultaneous Self-Calibration of Nonorthogonality and Nonlinearity of Cost-Effective Multiaxis Inertially Stabilized Gimbal Systems**.
DJI-Innovations, Shenzhen, China
Advisor: Prof. Fu Zhang
• Developed efficient algorithm based on product-of-exponetial (POE) formular to calibrate joint axis direction and encoder nonliearity of gimbal system.

Oct – Nov 2016 **Complementary filter design on SO(3) for Attitude Estimation**.
DJI-Innovations, Shenzhen, China
Advisor: Prof. Fu Zhang
• A computional cheap complementary filter design on SO(3) (the special orthogonal group) to provide attitude estimation of gimbal system.

Sep 2015 – Jun 2016 **Indoor location System Based on Rotating Magnetic Beacon**.
Harbin Institute of Technology, Harbin, China
Advisor: Prof. Qinghua Li
- Rotating magnetic sine signal identification.
- Indoor location method based on magnetic beacons position and rotating eigenvector orientation

Publications

[J1] **Guozheng Lu**, and Fu Zhang, "IMU Based Attitude Estimation in the Presence of Narrow-band Noise," *IEEE Transactions on Robotics*, **Received**, Nov. 2017. (PDF).

Patents

[P1] **Guozheng Lu**, and Fu Zhang, "A technique about an attitude estimation algorithm with noise rejection," PCT, Nov. 2017.