Yanshu Song

Objective: PhD Position

Birth: Oct 12, 1995
Mobile: +86 13713970763
E-mail: Danielsong007@gmail.com
Location: ShenZhen, China

EDUCATION

Harbin Institute of Technology (GPA: 86/100 - 14%) 2017.9 - Now
Master's Degree of Mechanical Engineering Shenzhen, China

Harbin Institute of Technology (GPA: 75.2/100) 2013.9 - 2017.7
Bachelor's Degree of Mechanical Engineering Harbin, China

HONORS

First-class ***scholarship of Harbin Institute of Technology*** 2018 & 2019, Shenzhen

International Runner-up of ***ICRA 2018 DJI RoboMaster AI Challenge*** 2018.5, Brisbane, Australia

Best Engineering Award of ***ABU Robocon 2015*** 2015.6, Zoucheng

National 2nd prize of ***National High School Physics League*** 2013.10, Harbin

National 2nd prize of ***National High School Mathematics League*** 2013.9, Harbin

National 3rd prize of ***National High School Biology League*** 2012.8, Harbin

PAPERS & PATENTS

[1] **Song, Y. S.**, Zhang, T. S., Li, B.*, 2018. "A Virtual Experiment Platform for 2D Robot Autonomous Navigation Algorithm System Based on ROS". ***IEEE International Conference on Information and Automation.*** pp.989-994.
[2] **Song, Y. S.**, Huang, H. L., Liu, F., Xi, F. F.*, Zhou, D. Y., and Li, B.*, 2019. "Torque Estimation for Robotic Joint With Harmonic Reducer Based on Deformation Calibration". ***IEEE Sensors Journal.*** *(Under review)*
[3] **Song, Y. S.**, Wu, J. H., and Huang, H. L.*, 2019. "A Novel Heavy-Load Nursing Robotic Arm - Design and Safety Control Based on Tactile Skin". ***IEEE International Conference on Robotics and Biomimetics.*** *(Waiting submitting)*
[4] Li, B., Wu, J. H., Huang, H. L., **Song, Y. S.**, Liu, F., Ning, Y. H., and Chen, J. A., 2018. "A Novel Kind of 6-DOF Bionic Manipulator Arm". ***C.N. Patent No. 201811515893.8.***
[5] Li, B., Wu, J. H., Liu, F., Xu, W. F., Huang, H. L., **Song, Y. S.**, and Liang, J. L., 2018. "A Novel Kind of Double-arm Robot for Nursing Tasks". ***C.N. Patent No. 201811515894.2.***

PROJECT EXPERIENCE

Research on Safety Control Strategy of Heavy-Load Robotic Arm for Nursing Task 2018.6 - 2019.7

- Designed **the structure and hardware system** of the 6 DOF heavy load series manipulator;
- Proposed ***two novel torque estimation methods*** for robotic joint with harmonic reducer (*Submitted one paper*);
- Designed ***tactile robotic skins*** and proposed ***a safety control strategy*** based on it *(Submitted one paper)*; [Video]
- Studied the ***fusion methods of impedance control algorithms*** based on joint space and task space.

Cooperative robots with autonomous navigation, recognition and decision systems 2017.9 - 2018.5

- Improved ***the DJI's robotic chassis & the motion control embedded system;***
- Designed a multi-sensor fusion autonomous ***localization, mapping and navigation system*** (*Published one paper*); [Video]
- Realized ***the real-time detection and tracking system*** of enemy robots' armor decks based on YOLOv2.
- Designed ***a multi-mode autonomous decision system*** for two cooperative robots (*5k lines of Python code*).

Design and Manufacture of Commercial Chocolate 3D Printers 2015.9 - 2017.6

- Proposed ***a novel extrusion and heating system*** specializing for chocolate printing;
- Solved ***the tricky plugging problem*** by many experiments about the melting and flowing of chocolate;
- Started ***a small technology service company*** and designed a ***3D printing training center*** for a vocational school.

INTERNSHIP & EXCHANGE

Robotics Robotics Ltd. (PI Electronics H.K Ltd.) 2017.7 – 2017.8, Shenzhen & H.K.
- Designed the control system of an automatic production line based on CAN-open. Assistant Engineer

Korea Advanced Institute of Science and Technology (KAIST) 2016.7 - 2016.8, Korea
- Contributed to the designing of a robotic system for automotive paint spraying. International Summer School

Harbin Aizhilan Technology Development Co., Ltd. 2016.3 - 2016.6, Harbin
- Designed and Manufactured a capsule powder fluid Cut-off Valve. Assistant Engineer