

Yanshu Song

Objective: Ph.D Position

Birth: Oct 12 1995

Location: Shenzhen, China

E-mail: Danielsong007@gmail.com

Current research: **Robotics & Sensors**

Future research interests: **Robotics & 3D Vision**



EDUCATION

Harbin Institute of Technology Shenzhen (GPA: 86/100)

2017.9 - Now

Master's Degree of Mechanical Engineering

Shenzhen, China

Harbin Institute of Technology (GPA: 76.2/100)

2013.9 - 2017.7

Bachelor's Degree of Mechanical Engineering

Harbin, China

HONORS

First-class *scholarship of Harbin Institute of Technology*

2018.9 - Now, China

International Runner-up of [ICRA 2018 DJI RoboMaster AI Challenge](#) [2nd /48 teams]

2018.5, Brisbane, Australia

Best Engineering Award of [ABU Robocon 2015](#) [Top 8 /32 teams]

2015.6, China

National 2nd & Provincial 1st prize of [National High School Physics League](#) [2% /2000+]

2013.10, China

National 2nd & Provincial 1st prize of [National High School Mathematics League](#) [2% /2000+]

2013.9, China

National 3rd & Provincial 2nd prize of [National High School Biology League](#) [10% /2000+]

2012.8, China

PUBLICATIONS

[1] **Song, Y. S.**, Huang, H. L., Liu, F., Xi, F. F.^{*}, and Li, B.^{*}, 2019. "Torque Estimation for Robotic Joint With Harmonic Reducer Based on Deformation Calibration". *IEEE Sensors Journal*. (Accepted) [\[PDF\]](#)

[2] **Song, Y. S.**, Zhang, T. S., Li, B.^{*}, 2018. "A Virtual Experiment Platform for 2D Robot Autonomous Navigation Algorithm System". *IEEE International Conference on Information and Automation*. pp. 989-994. [\[PDF\]](#)

[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*. (Under review) [\[PDF\]](#)

[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*. [\[PDF\]](#)

[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*. [\[PDF\]](#)

INTERNSHIP EXPERIENCE

Robotics Robotics Ltd. ([PI Electronics H.K Ltd.](#))

2017.7 - 2017.9, Shenzhen & H.K.

☞ Designed and realized *a motion control system* for one of their automatic production lines.

Assistant Engineer

Korea Advanced Institute of Science and Technology ([KAIST](#))

2016.7 - 2016.8, Korea

☞ Designed *a novel 6-DOF manipulator* for automotive automatic painting (*Laboratory version*).

Summer School

MAIN PROJECTS & SKILLS

[\[Details of all of my projects\]](#)

Research on Safety Control of Man-Machine Cooperation of Manipulator

2018.6 - Now

☞ Designed and manufactured *a novel 6-DOF heavy-load manipulator* (Bearing capacity: 50kg);

☞ Proposed *a new kind of tactile robotic skin* and *a safety control strategy* based on it (*Submitted one paper*); [\[Video\]](#)

☞ Proposed *two novel torque estimation methods* for robotic joint (*Submitted one paper*); [\[Code\]](#)

☞ Proposed *a novel fusion method of impedance control algorithms*.

Cooperative Robots with Autonomous Navigation, Recognition and Decision Systems

2017.9 - 2018.5

☞ Designed and realized *an autonomous navigation system* for the robots (*Localization accuracy: 3cm*); [\[Video\]](#) [\[Code\]](#)

☞ Designed and realized *a real-time detecting and tracking system* based on YOLOv2; [\[Code\]](#)

☞ Proposed *a novel simulation platform* for 2D autonomous navigation system (*Submitted one paper*); [\[Code\]](#)

☞ Proposed *a novel autonomous decision-making system* for the two cooperative robots (*Won the runner-up*). [\[Code\]](#)

Research on FDM 3D Printer & Chocolate 3D Printer

2015.9 - 2017.6

☞ Designed and manufactured *a high-precision FDM 3D printer* (Printing accuracy: 0.1mm);

☞ Proposed *a novel extrusion and heating system* specialized for chocolate printing (*Plugging rate: less than 2%*);

☞ Co-founded *a startup* and co-created a *3D printing training center*. [\[Pictures\]](#)

Design (self-assessment):

Solidworks (90), CAD (90), Adams (80); Altium Designer (80).

Programming (self-assessment):

Python (90), C++ (80); ROS (80), Microprocessor (STM32: 80).

English Level:

IELTS 6.5 (Listening 6.0, Reading 7.5, Writing 6.0, Speaking 5.5).