

## EDUCATION

<b>Harbin Institute of Technology (GPA: 86/100 - 14%)</b>	2017.9 - Now
Master's Degree of Mechanical Engineering	Shenzhen, China
<b>Harbin Institute of Technology (GPA: 75.2/100)</b>	2013.9 - 2017.7
Bachelor's Degree of Mechanical Engineering	Harbin, China

## HONORS

First-class <i>scholarship of Harbin Institute of Technology</i>	2018 & 2019, Shenzhen
International Runner-up of <i>ICRA 2018 DJI RoboMaster AI Challenge</i>	2018.5, Brisbane, Australia
Best Engineering Award of <i>ABU Robocon 2015</i>	2015.6, Zoucheng
National 2nd prize of <i>National High School Physics League</i>	2013.10, Harbin
National 2nd prize of <i>National High School Mathematics League</i>	2013.9, Harbin
National 3rd prize of <i>National High School Biology League</i>	2012.8, Harbin

## PAPERS & PATENTS

- [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*. (Accept, subject to minor changes)
- [2] 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.
- [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)
- [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

<b>Research on Safety Control Strategy of Heavy-Load Robotic Arm for Nursing Task</b>	2018.6 - 2019.7
<ul style="list-style-type: none"> <li>▢ Designed the <b>structure and hardware system</b> of the 6 DOF heavy load series manipulator;</li> <li>▢ Proposed <b>two novel torque estimation methods</b> for robotic joint with harmonic reducer (<i>Submitted one paper</i>);</li> <li>▢ Designed <b>tactile robotic skins</b> and proposed <b>a safety control strategy</b> based on it (<i>Submitted one paper</i>); <a href="#">[Video]</a></li> <li>▢ Studied the <b>fusion methods of impedance control algorithms</b> based on joint space and task space.</li> </ul>	
<b>Cooperative robots with autonomous navigation, recognition and decision systems</b>	2017.9 - 2018.5
<ul style="list-style-type: none"> <li>▢ Improved <b>the DJI's robotic chassis &amp; the motion control embedded system</b>;</li> <li>▢ Designed a multi-sensor fusion autonomous <b>localization, mapping and navigation system</b> (<i>Published one paper</i>); <a href="#">[Video]</a></li> <li>▢ Realized <b>the real-time detection and tracking system</b> of enemy robots' armor decks based on YOLOv2.</li> <li>▢ Designed <b>a multi-mode autonomous decision system</b> for two cooperative robots <a href="#">[Code]</a></li> </ul>	
<b>Design and Manufacture of Commercial Chocolate 3D Printers</b>	2015.9 - 2017.6
<ul style="list-style-type: none"> <li>▢ Proposed <b>a novel extrusion and heating system</b> specializing for chocolate printing;</li> <li>▢ Solved <b>the tricky plugging problem</b> by many experiments about the melting and flowing of chocolate;</li> <li>▢ Started <b>a small technology service company</b> and designed a <b>3D printing training center</b> for a vocational school. <a href="#">[Intros]</a></li> </ul>	

## INTERNSHIP & EXCHANGE

<b>Robotics Robotics Ltd. (PI Electronics H.K Ltd.)</b>	2017.7 - 2017.8, Shenzhen & H.K.
▢ Designed the control system of an automatic production line based on CAN-open.	Assistant Engineer
<b>Korea Advanced Institute of Science and Technology (KAIST)</b>	2016.7 - 2016.8, Korea
▢ Contributed to the designing of a robotic system for automotive paint spraying.	International Summer School
<b>Harbin Aizhilan Technology Development Co., Ltd.</b>	2016.3 - 2016.6, Harbin
▢ Designed and Manufactured a capsule powder fluid Cut-off Valve.	Assistant Engineer