

# Su Yinyin

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## EDUCATION BACKGROUND

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**University of Chinese Academy of Sciences (UCAS)**

MA. SC, General and Fundamental Mechanics, Institute of Mechanics

**Beijing, China**

Sept. 2014-Jun. 2017

**Northeastern University (NEU)**

B.Eng., Engineering Mechanics

**Shenyang, China**

Sept. 2010-Jun. 2014

GPA: 86.38/100

## AWARDS & ACHIEVEMENTS

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- Honorable Mention in the 2018 JRX ROBOTICS CHALLENGE (RMB 100,000) Dec. 2018
- National Xu Zhilun Outstanding Students Award (2 Candidates/province) Nov. 2014
- National Scholarship Nov. 2013
- National Scholarship for Encouragement Nov. 2012
- The First Prize Scholarship (NEU) twice
- The Second Prize Scholarship (NEU) three times
- Outstanding Graduates (NEU) May. 2014
- Honorable Mention in Mathematical Contest in Modeling Mar. 2013

## PROFESSIONAL EXPERIENCE

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**Southern University of Science and Technology (SUSCTech)**

Research assistant in MEE

**Shen Zhen, China**

Apr. 2019-present

- Led a team and proposed a high-payload hybrid robotic gripper based on the soft actuators, and submit the [related paper](#) and [video](#) in ICRA 2020.
- Built the model, designed a dedicated experiment platform and control system for the soft origamic actuator.
- Built the dual-arm robotic experiment platform for our lab, debugged and tested it.

**The Chinese University of Hong Kong (CUHK)**

Research assistant in MAE

**Hong Kong, China**

Oct. 2018-Apr. 2019

- Built open-door task using 6-DOFs arm, simulated the task with QP controller and tuned the priorities of sub-tasks based on completeness of tasks automatically.
- Did the open-door experiment in UR5 and tested the proposed strategy in real environment.

**The Chinese University of Hong Kong, Shenzhen (CUHKSZ)**

Research engineer in Institute of Robotics and Intelligent Manufacturing

**Shen Zhen, China**

Dec. 2017-Sept. 2018

- Formed a [team](#) (IRIM-Solver) to participate in **2018 JDX Robotics Challenge** as **team leader**, was in charge of team cooperation, resource allocation and overall designation, implemented grasp system and vision system. At last, our team stepped into the [final competition](#) and was awarded **RMB 100,000. (10 final teams in the world)**.
- As a key member, did research on tuning the priority of multi-task controller automatically and related algorithm in project **Design, control and Scheduling of Logistical Service Robots in Complicated Environments** supported by NSFC.
- Wrote and applied the project **Research on Key Technologies of Heterogeneous Logistics Robot**

**System Based on Integration of Human, Robot and Environment (RMB 3,000,000)** successfully supported by **Shenzhen Science and Technology Innovation Committee**.

- Grasped the fundamental theory and related algorithm of machine learning, reinforcement learning and deep learning, and could program KNN, LR, SVM, Decision Tree, Bayes, RNN, CNN, Q-learning, Sarsa, DQN, DDPG and so on in PYTHON fluently.

**China General Nuclear Research Institute Co., Ltd. (CGN)**

**Shen Zhen, China**

*Assistant engineer*

*Jul. 2017-Dec. 2017*

- Designed the constant volume of stabilizer in primary loop of 3-rd generation home-made nuclear power plant HPR1000.
- As a director, do research on fluid-structure coupling of **anti-sloshing design of liquid tank in marine nuclear reactor (RMB 50,000)** supported by **Youth Science and Technology Fund, CGN**.

## RESEARCH EXPERIENCE (Master's Period)

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**Washing Machine in Space Station (RMB 300,000)**

**Beijing, China**

*Supported by China Astronaut Research and Training Center and Haier*

*May. 2016- Jul. 2017*

- Developed on-orbit cleaning technology in our space station in order to save water and electricity, separate gas and liquid under microgravity.
- Proposed centrifugal cone-shaped two-phase washing machine and design the structure of roller and impeller for this device.
- Simulated interior flow field of the new washing machine with CFD and find the more optimal motion plan of roller and impeller.

**Surface Tension Vaned Tank of Satellite Propellant (RMB 820,000)**

**Beijing, China**

*Supported by China Academy of Space Technology*

*Jun. 2015- Dec.2016*

- As a director, designed a new structure of the satellite propellant tank and especially propose the inner **Propellant Management Device** and its distribution mode.
- Designed and conducted microgravity experiments of tank in drop tower and do related numerical simulations to improve its structure.
- In addition, invited to join in **Space Tea Cup in Shenzhou 11** and in charge of **drop-tower** experiments.

**TianGong2 Space Laboratory (TG2)**

**Beijing and Jiuquan, China**

*The first responsible person for subsystem in JSLC*

*Oct. 2015- Dec. 2016*

- As a member, designed the structure of tank body for the **Liquid Bridge Subsystem in TG2**.
- Testified and explained the problem of unusual big temperature difference at the beginning of starting system by numerical simulation.
- In charge of electrical test and mechanical vibration test before launch. Founded and solved **4 significant problems and approved by the chief designer of the system**.

**ShiJian10 Microgravity Satellite (SJ10)**

**Beijing and Jiuquan, China**

*Ground technical support in the Flight Control Center*

*Sept. 2015-Apr. 2016*

- Responsible for electrical test and thermal balance test in NSSC, monitor the data from SJ10.
- For the results from **Thermocapillary-convection Annular Liquid Pool Device** in SJ10, did the ground matching experiment and numerical simulation.

## PUBLICATIONS

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- **Yinyin Su**, Zhonggui Fang, Wenpei Zhu, Xiaochen Sun, Yuming Zhu, Hexiang Wang, Hailin Huang, Sicong Liu and Zheng Wang. [“A Hybrid Robotic Gripper with High-payload Soft Origamic Actuators and Proprioception”](#), in **RA-L** with **ICRA** option papers , 2020 International Conference on Robotics and Automation.
- Yiyao Zhu, Jian Li, Yuquan Wang, **Yinyin Su** and Yongquan Chen. [“Real-time tuning soft task priorities with quadratic programming”](#), in **ICRA**, 2020 International Conference on Robotics and Automation.(Under Review)
- **Yinyin Su**, Yuquan Wang and Abderrahmane Kheddar. [“Sample-efficient learning of soft task priorities through Bayesian optimization”](#) , in **Humanoids**, 2018 IEEE-RAS 18th International Conference.
- Kang Qi, Wang Jia, Duan, Li, **Su Yinyin**, He Jianwu, Wu Di and Hu Wenrui. [The volume ratio effect on flow patterns and transition processes of thermocapillary convection](#). **Journal of Fluid Mechanic**, 868:560-583, 2019.
- **Su Yinyin**, Wu Di, Duan Li and Kang Qi. [Numerical Simulation of Flow Field in Centrifugal Cone-shaped Two - phase Washing Machine under Microgravity](#). **Manned Spaceflight**, 2018,24(01):117-126.
- Yongqiang Li, Mingzhu Hu, Ling Liu, **YinYin Su**, Li Duan and Qi Kang. [Study of Capillary Driven Flow in an Interior Corner of Rounded Wall under Microgravity](#). **Microgravity Science and Technology**, 27:193-205, 2015.

## IT & ENGLISH SKILLS

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- IELTS: Overall: 6.0, Listening: 6.0, Reading: 7.0, Writing: 5.5, Speaking: 5.5.
- IT: Extensive knowledge of Linux, ROS, Python, Matlab, R Language, C, C++ and could use Python packages including Tensorflow, Numpy, pandas, Sciki-learn, keras and so on fluently.
- Outstanding in mechanics theories, especially FEM and CFD. Experienced in FLUENT, FLOW-3D ABAQUS, ANSYS, ICEM, AutoCAD, SolidWorks, CATIA, Office.