Su Yinyin

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EDUCATION BACKGROUND

University of Chinese Academy of Sciences (UCAS) **Beijing, China**
MA. SC, General and Fundamental Mechanics, Institute of Mechanics *Sept. 2014-Jun. 2017*

Northeastern University (NEU) **Shenyang, China**
B.Eng., Engineering Mechanics *Sept. 2010-Jun. 2014*
GPA: 86.38/100, Top(1/31)

AWARDS & ACHIEVEMENTS

- 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

Southern University of Science and Technology (SUSCTech) **Shen Zhen, China**
Research assistant in MEE *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) **Hong Kong, China**
Research assistant in MAE *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) **Shen Zhen, China**
Research engineer in Institute of Robotics and Intelligent Manufacturing *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)

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

- **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

- 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.