Ruoyu Feng

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Education

Tsinghua University | School of Aerospace Engineering (*2018-present*)
PhD | Mechanics, on track to defend thesis in summer *2023*
Advisors | Prof. Junfeng Li and Prof. Hexi Baoyin
Doctoral Courses | GPA *3.74/4.0*, major courses: *Advanced Dynamics, Stability of motion, Optimal Control, Automatic Control for Mechanical-electric System, Flexible Electronics Technology, Functional Materials, Robot and Bionics*
Thesis Title | "*Passive and active motion of soft robots for microgravity exploration*"

Shandong University | School of Civil Engineering (*2014-2018*)
Undergraduate Degree | Engineering Mechanics
Undergraduate Courses | First Class (*95%*), GPA *90.74/100*, major courses: *Theoretical Mechanics, Analytical Mechanics, Mechanics of Materials, Elasticity, Theory of Plates and Shells, Structural Dynamics, Experimental Mechanics, Computational Mechanics, Structural Optimization Design, Fluid Mechanics, Plasticity, Fracture Mechanics*

English | TOEFL *102/120*

Skills | Discrete elastic rods & shells simulation, ABAQUS, ADAMS, Arduino, AutoCAD, etc.
Research interests | Dynamics modeling and simulation; Biomechanics and morphological computation; Design and analysis of soft robots;

Academic Experience

Doctoral researcher | Tsinghua University, China (*2018-present*)
- Principle investigator of a five-year National Key Research and Development Program of China (*Grant No. 2019YFA0706500*)

Exchange student | Space Robotics Lab, Tohoku University, Japan (*Apr 2022-Sept 2022, online*)
- COLABS exchange program, advisor: Prof. Kazuya Yoshida
- Project meetings and invited talks on microgravity robots

Teaching Assistant | Tsinghua University, China (*Jul 2019-Aug 2019, Jul 2021-Aug 2021*)
- Aerospace Technology Science Innovation and Practice Camps of Tsinghua University
- Led and managed 8 teams of 31 undergraduates in total to develop soft and intelligent robots

Exchange student | Harbin Institute of Technology, China (*Sept 2015-Jul 2016*)
- Exchange Program in Engineering Mechanics
- Designed, manufactured and characterized a strain-based human weight sensor

Short-time visitor | Shanghai Jiao Tong University, China (*Jul* 2016-*Aug 2016*)
- International Summer School on Naval Architecture, Ocean Engineering and Mechanics

Short-time visitor | Nagasaki University, Japan (*Aug 2015*)
- Japanese SAKURA Exchange Program in Science

Short-time visitor | Oklahoma University, US (*Jul* 2015-*Aug 2015*)

- Summer school of Oklahoma University and Southern Plains Transportation Center
- Designed, coded, and tested a miniature autonomous vehicle

Publications

- **RY Feng**, K Yoshida, and JF Li, et al., Rebound stabilization for an asteroid lander by flexible plate design, minor revision, *Aerospace Science and Technology*, 2022.
- **RY Feng**, JF Li, and HX Baoyin, Novel hopping mechanism for an asteroid soft explorer inspired by octopuses, accepted, IEEE International Conference on Robotics and Biomimetics (ROBIO), 2022.
- **RY Feng**, Y Zhang, and JY Liu, et al., Soft robotic perspective and concept for planetary small body exploration, published online, *Soft Robotics*, 2021.
- HQ Niu*, **RY Feng***, and YW Xie*, et al., Magworm: a biomimetic magnet embedded worm-like soft robot, *Soft Robotics*, 8, pp. 507-518, 2021.
- **RY Feng**, P Zhang, and JF Li, et al., Kinetic and dynamic modeling of single actuator wave-like robot, *Robotica*, 37, pp. 1971-1986, 2019.
- **RY Feng**, Y Chen, and CZ Cui, Dynamic response of post-tensioned rocking wall-moment frames under near-fault ground excitation, *Earthquakes and Structures*, 15, pp. 243-251, 2018.
- **RY Feng**, HX Baoyin, and JF Li, A morphable, stiffness-variable asteroid hopping robot, Chinese Patent, No. 202011398404.2, 2022.
- Y Zhang, **RY Feng**, and Y Yang, et al., Asteroid capture dynamics and control using a large-scale flexible net, *IEEE Transactions on Aerospace and Electronic Systems*, 58, pp. 4033-4043, 2022.
- WF Yan, **RY Feng**, and HX Baoyin, Stability of a flexible asteroid lander with landing control, submitted, *Aerospace*, 2022.
- **RY Feng**, L Chen, and HZ Zhang, et al., Practice of soft robotics and innovation education, *Mechanics in Engineering*, 42, pp. 347-350, 2020. (in Chinese)
- **RY Feng**, Y Chen, and ZS Li, Cracks identification of mass concrete structures with R wave spectral energy transmission ratio method, *Journal of Vibration and Shock*, 35, pp. 221-225, 2016. (in Chinese)
- **RY Feng**, Y Chen, and J Bai, et al., Force analysis of thin-walled horizontal circular cylindrical shell under non-axisymmetric loading, *Mechanics in Engineering*, 38, pp. 531-537, 2016. (in Chinese)

Awards

- Second prize scholarship for comprehensive performance, Tsinghua University, 2022.
- Excellence award in the 5-th soft robotic innovative design contest of China, 2019.
- Winning prize in international collegiate spacecraft innovation design contest, 2018.
- The ‘Xu Zhilun’ national award for outstanding students in mechanics, 2018.
- First prize in national innovation and entrepreneurship training program for university students, Shandong University, 2017.
- Second campus individual scholarship, Shandong University, 2016.
- First prize scholarship for outstanding students, Shandong University, 2015.
- First prize in the 14-th Challenge Cup college students extracurricular academic works competition of Shandong Province, 2015.