Zhanwei Wang

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Bd de la Plaine 2, 1050 Ixelles, Brussels, Belgium

Education

2020.10 – 2024.07	Robots & Multibody Mechanics (R&MM) - BruBotics, Department of Mechanical Engineering, **Vrije Universiteit Brussel** Degree: Doctor of Engineering Sciences Major: Mechanical Engineering
2017.06 – 2020.01	Institute of Vacuum and Fluid Engineering, School of Mechanical Engineering and Automation, **Northeastern University** (CN) Degree: Master of Engineering Major: Chemical Process Equipment
2013.09 - 2017.06	Institute of Vacuum and Fluid Engineering, School of Mechanical Engineering and Automation, **Northeastern University** (CN) Degree: Bachelor of Engineering Major: Process Equipment and Control Engineering

Research Experience

2020- Self-healing soft robots

2019 Fast-mixing and Spraying Microfluidic Chip for Cryo-EM

2018 Design and Simulation of Gas Collecting Device for Low-orbit Aircraft

2017 Microfluidic Chip Research on Cells Medication Dosing

Thesis

Doctoral Thesis: Writing

Master Thesis: Fast-mixing and Spraying Microfluidic Chip for Cryo-EM

Bachelor Thesis: Design of VHVDP-400 Vertical High Vacuum Dry Pump

Publications and Patents

2023 **Wang, Z.,** Terryn, S., Wang, H., et al. (2023), Self-Closing and Self-Healing Multi-Material Suction Cups for Energy-Efficient Vacuum Grippers. Adv. Intell. Syst. 2300135.

2023 Wang, H., Terryn, S., **Wang, Z.,** Van Assche, G., Iida, F. and Vanderborght, B. (2023), Self-Regulated Self-Healing Robotic Gripper for Resilient and Adaptive Grasping. Adv. Intell. Syst. 2300223.

2023 Safaei, A.; Brancart, J.; **Wang, Z.,** et al. Fast Self-Healing at Room Temperature in Diels–Alder Elastomers. Polymers 2023, 15, 3527.

2022 **Wang Z,** Terryn S, Legrand J, et al. Topology optimized multi-material self-healing actuator with reduced out-of-plane deformation [C]//2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). IEEE, 2022: 5448-5455.

2019 **Wang Z,** Kun Liu*, Shulei Chen, et al. Air-blast atomization simulation and experiment study based on a microfluidic chip, 14th International Conference on Vacuum Science and Engineering Application**.**

2018 **Wang Z**, Kun Liu*, Jiuxin Ning, et al. Effects of Pulse Interval and Dosing Flux on Cells Varying the Relative Velocity of Micro Droplets and Culture Solution, Processes, Volume 6, 7 August 2018, 119.

2017 Naiheng Yang*, Dechun Ba, Xiaodong Wang, **Wang Z**, et al. Development of Molten Steel Vacuum Degassing and Secondary Refining Technology. Vacuum (4).

2023 **Wang, Z.**, Terryn, S., Vanderborght, B. A Self-closing Valve: Europe, EP 23191748.5.

2019 Kun Liu, Ming Hao, Yue Jiang, Shulei Chen, Jingyi Xu, **Wang Z**, et al. A Single-cell capture microfluidic chip: China, CN201910281813.5[P]. 2019-04-09

2017 Kun Liu, **Wang Z**, et al. A Multi-stages Composited High Vacuum Dry Pump: China, CN201711487620.2[P]. 2018-06-01.

2016 Hui Li, Fei Lv, Chunyu Zhao, Xuebin Ni, Shanqing Li, Mingyu Hu, **Wang Z**, et al. A Universal Intelligent Vibration Isolation system and Vibration Test Method for Automatically Adjusting Damping: China, CN105650181A[P]. 2016-06-08.

2016 Hui Li, Wei Sun, Huanjun Li, He Li, **Wang Z**, et al. Machine tool spindle cutting alarm device and method based on non-contact displacement sensor: China, CN105500113A[P]. 2016-04-20.

Conferences and academic events

2023 International Symposium on Smart Materials at the PCCL in Leoben

2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)

2022 SMART training school on the “Applications of smart materials and soft robotics” at the University of Pisa

2021 Winter School on Smart Materials for Soft Robotics at the University of Cambridge

2017-2019 13^{th} / 14^{th} International Conference on Vacuum Science and Engineering Application

19th Annual Conference of Chinese Society of Micro-Nano Technology

2014-2016 National Innovation Training for College Students

- EHPS High-Efficiency Energy-Saving Steering Power System Design and Manufacture
- Design and Manufacture of Portable Miniature Roots Vacuum Pump

2017, 2015 Internship in Scientific Instrument Co., Ltd., Chinese Academy of Sciences

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Research Interests

Soft robotics; Simulations; Additive Manufacturing; Stimulus responsive materials

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Relevant Skills

- 3D Printing (Hardness 90D – 23A)
- Finite element analysis (FEA) and Computational Fluid Dynamics (CFD).
- Computer-aided Design (CAD).
- Python, Arduino, MATLAB.

Projects

2020-2024 EU Horizon: International Training Network on Soft, Self-responsive, Smart MAterials for RoboTs (No 860108).

2017-2019 NSFC: Pulse-type neuron single-cell administration chips micro-nainer flow and diffusion quality characteristics. (No 51376039).

Following projects to research findings

2024-2027 Belgium Builds Back Circular: SNAP (Self-closing sustaiNable vAcuum cuPs). Amount: 795580 euros

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Awards

2020-2024 Funding from China Scholarship Council (CSC).

2018-2019 Awarded the first-class scholarship by Northeastern University.

2018 Awarded a JCHX naming scholarship by Northeastern University and JCHX Mining Management CO., LTD.

2015 Awarded as a model student of the School of Mechanical Engineering and Automation.

2014-2016 Awarded the third-class scholarship by Northeastern University.

References

Prof. Bram Vanderborght
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Dr. Seppe Terryn
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