Xing Ye

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SUMMARY

Research engineer with 7 years of experience leading interdisciplinary research projects in mechanical engineering, advanced materials, and soft robotics. Skilled at performing experimental research on emerging technologies, developing iterative prototyping plans, managing teams with diverse backgrounds, and communicating ideas with other engineers and stakeholders.

EDUCATION

Ph.D. in Mechanical Engineering
Boston University, Boston, MA — Aug 2025
- Thesis: Liquid metal-enabled energy sources and actuators

Master of Engineering in Instrument & Meter Engineering
Tsinghua University, China — Jul 2021
- Thesis: Design and fabrication of pneumatic soft actuators for robotic and biomedical applications

Bachelor of Medicine in Stomatology
China Medical University, China — Jul 2018

WORK EXPERIENCE

Doctoral Researcher
Additive Assembly Lab, Boston University, Boston, MA — Sep 2021 – Aug 2025
- Conducted experiments in a wet lab, collected data, performed data analysis, and published manuscripts in scientific journals
- Managed teams of engineers to work on interdisciplinary projects, trained and supervised junior researchers, oversaw lab inventory and equipment maintenance
- Developed a multi-material 3D printing strategy which enables shape morphing of 2D patterns into 3D structures with fluidic actuators. Created algorithms to automate g-code generation for deployable structures with 90% reduction in storage volume
- Designed and conducted experiments for stretchable soft batteries and self-powered devices from harvesting energy of liquid metal oxide, offering 70x increase in instantaneous power density than that of traditional energy harvesters
- Presented seminars and delivered presentations at major international conferences (2023 Materials Research Society Fall Meeting, 2024 Gordon Research Conference on Multifunctional Materials and Structures)

Research Fellow
Microelectromechanical Systems Lab, Tsinghua University, China — Sep 2018 – Jul 2021
- Built a vacuum-driven lightweight soft torsional actuator that generates rotary motions, whose specific torque is higher than 80% of other methods reported in the literature
- Built finite element models to optimize parameters for robotic mechanisms in ANSYS. Performed data analysis for images and signal processing in MATLAB, LabVIEW, and Python
- Fabricated a pneumatic gripper capable of holding various objects and developed soft manipulators for laboratory automation based on torsional actuators

Research Intern
Shenzhen Vivolight Medical Device & Technology Co., Ltd., China — Jul 2019 – Sep 2019
- Developed an intracranial pressure monitoring catheter prototype with a built-in pressure sensor at the tip of a catheter
- Incorporated piezoresistive pressure sensor dies into catheters by wire bonding
- Tested and evaluated the performance of the ICP device on in vitro models under various environments

Graduate Teaching Fellow
Boston University, Boston, MA — Sep 2022 – May 2023
- Prepared course and examination materials, graded assignments, and led discussion sessions on

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engineering courses such as Instrumentation and Python Programming for Engineers
- Instructed lab sessions for 70+ students and held one-on-one office hours for 80+ students
- Received an average of 4.6/5.0 (“excellent”) on student evaluations

Reviewer
Scientific Reports Dec 2023 – Aug 2024

- Evaluated the scientific quality, novelty, and robustness of submitted research manuscripts and recommended editorial decisions for *Scientific Reports*, the 5th most-cited academic journal in the world

PUBLICATIONS

- **Xing Ye**, Zhaoyi Zheng, Jörg G. Werner, J. William Boley. Mechanically rupturing liquid metal oxide induces electrochemical energy. *Advanced Functional Materials*, 34(31), 2309177, 2023.
- **Xing Ye**, Shidong Zhu, Xiang Qian, Min Zhang, Xiaohao Wang. V-shape Pneumatic Torsional Actuator: A Building Block for Soft Grasper and Manipulator, *Soft Robotics*, 9(3):562-76, 2021.
- Tao Jiang, Wenying Qiu, Zhaoyang Li, **Xing Ye**, Yuhan Liu, Yushi Li, Xiaohao Wang, Junwen Zhong, Xiang Qian, Liwei Lin. Programmable tactile feedback patterns for cognitive assistance by flexible electret actuators. *Advanced Functional Materials*, 32(4):2107985, 2022.

PATENTS

- J. William Boley, **Xing Ye**. Liquid metal oxide composites as a source of electrochemical energy and uses thereof. U.S. Patent Application No. 63/711,347, pending.
- Xiang Qian, **Xing Ye**, Shidong Zhu, Min Zhang, Xiaohao Wang, Pneumatic torsional actuators and applications in robotic manipulation. Chinese Patent Application No. 202010966077.X, Patent No. CN112045702B, granted.
- Shidong Zhu, **Xing Ye**, Xiaohao Wang, Xiang Qian, Xinghui Li, A silicone elastomer-based robotic cardiac simulator. Chinese Patent Application No. 2020109660498, Patent No. CN112092409B, granted.

SKILLS

Programming | Java, Python, MATLAB, C, Android development
Machining | Robotic manufacturing line (Universal), drill press, laser cutting, waterjet cutting, soldering, electronics
Cleanroom equipment | Magnetron sputtering, wire bonding, surface profiling, laser micrometer, microscope
3D printing | Direct ink writing (Aerotech), FDM (Bambu), SLA (Formlabs), DLP (BMF)
CAD & FEM | SolidWorks, AutoCAD, ANSYS
Software | Arduino, Raspberry Pi, LabVIEW, Blender, Photoshop, Illustrator, VideoStudio, Microsoft Office
Language | English, Mandarin