Xing Ye

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Department of Precision Instrument, Tsinghua University | Shenzhen, China, 518055

EDUCATION

Tsinghua University *Sep 2018 – Jul 2021 (Anticipated)*

Master of Engineering, Instrument and Meter Engineering

Thesis: Design and fabrication of pneumatic soft actuators for robotic and biomedical applications

Thesis supervisor: Professor Xiang Qian

China Medical University *Sep 2013 – Jul 2018*

Bachelor of Medicine, Stomatology

RESEARCH EXPERIENCE

MEMS Lab, Shenzhen International Graduate School, Tsinghua University *Dec 2018 – Present*

Student Researcher

- Soft robotic heart pumped by pneumatic actuators
  - Developed a soft robotic heart made of silicone rubber based on models from a 3D anatomy database
  - Created leaflet silicone heart valves using customized 3D-printed molds
  - Actuated the heart model by wrapping vacuum-powered origami-inspired artificial circular muscles
  - Programmed the actuators to contract and relax periodically using a microcontroller and acquired intracardiac data within LabVIEW
- Soft robotic grasper and manipulator based on pneumatic torsional actuators
  - Designed a vacuum-driven lightweight torsional actuator that generates rotary motions
  - Built finite element models to optimize parameters for torsional actuators in ANSYS
  - Captured and analyzed the trajectories of actuators in MATLAB using a high-speed camera
  - Fabricated a pneumatic grasper capable of holding various objects and developed soft manipulators for laboratory automation based on torsional actuators

PUBLICATION

Journal article

- **Xing Ye**, Shidong Zhu, Xiang Qian, Min Zhang, Xiaohao Wang, V-shape Pneumatic Torsional Actuator: A Building Block for Soft Grasper and Manipulator (Under review, submitted to *Soft Robotics*)

Patents

- Xiang Qian, **Xing Ye**, Shidong Zhu, Min Zhang, Xiaohao Wang, Pneumatic torsional actuators and applications in robotic manipulation (202010966077.X)
- Shidong Zhu, **Xing Ye**, Xiaohao Wang, Xiang Qian, Xinghui Li, A silicone elastomer-based robotic cardiac simulatior (202010966049.8)

HONORS AND AWARDS

- 2nd Prize, Finalist, National Postgraduate Robot Innovative Design Competition *Sep 2020*
- Scholarship for Outstanding Students, Tsinghua University *2019 – 2020*
- Scholarship for Outstanding Students, Tsinghua University *2018 – 2019*

WORK EXPERIENCE

Shenzhen Vivo-light Medical Device & Technology Co., Ltd. *Jul 2019 – Sep 2019*
Research Intern

- Intracranial pressure monitoring catheter prototype
  - Helped develop an ICP monitoring device 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

Hospital of Stomatology, China Medical University *Jun 2017 – Jun 2018*
Clinical Clerkship

- Performed clinical assessments, examinations, treatments and compiled case reports under the supervision of attending physicians, rotating through different departments in the hospital

TECHNICAL SKILLS

Programming	Java, C, MATLAB, LabVIEW, Arduino, Android development
Prototyping	3D printing, laser cutting, soft robotic fabrication, silicone casting, PCB design
CAD & FEM	ANSYS, Solidworks, AutoCAD, Inventor, Geomagic
Graphics	Photoshop, Illustrator, VideoStudio