

# Xing Ye

<https://xingye0120.github.io/> | [yx18@mails.tsinghua.edu.cn](mailto:yx18@mails.tsinghua.edu.cn) | Shenzhen, China, 518055

## EDUCATION

### Tsinghua University

Sep 2018 – Jul 2021 (*Anticipated*)

Master of Engineering, Instrument and Meter Engineering; GPA: 3.94/4.00

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; GPA: 82.4%

## 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
- Video demonstrations available at <https://xingye0120.github.io/>

## 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

## 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; Revision 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 simulator (202010966049.8)

## HONORS & AWARDS

- 2<sup>nd</sup> Prize, Finalist, National Postgraduate Robot Innovative Design Competition Sep 2020
- Scholarship for Outstanding Students, Tsinghua University 2018 – 2019; 2019 – 2020

## TECHNICAL SKILLS

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