

Xiangyu Guo

Master's degree candidate (Transnational education program)
School of Information and Electronic Engineering (Sussex Artificial Intelligence Institute),
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Education

- 2022.9-Present Master's degree candidate, Major in **Robotics and Autonomous Systems**
School of Engineering and Informatics, **University of Sussex** (Transnational education program), China
Supervisor: Dr. Nicolas Herzig
GPA:86.7/100 (Current grades)
- 2017.8-2021.7 Bachelor of Engineering, Major in **Electrical Engineering and Automation**
School of Electrical Engineering, **Beijing Jiaotong University** (selected in Double First Class University Plan, sponsored by Project **211**), China

Academic appointment

- 2021.9-2022.1 Research Assistant
School of Mechanical and Electrical Engineering, **Beijing Institute of Technology (985)**, China
- 2021.9-2022.1 Research Assistant
College of Engineering, Westlake University, China
Supervisor: Prof. Hanqing Jiang

Research interests

Robotics (including soft robotics)
Embedded Systems
Artificial Intelligence (including image processing)
Control Engineering
Machine learning

Skills

English	TOFEL: 97/120 (R: 25 / L: 26 / S: 21 / W: 25) GRE: 334 (158/170/4.0)
Programming	MATLAB (including Simulink), C/C++, Python
Embedded Development:	STM32 , Arduino , 51, FPGA (Verilog)
Other Software and tool	circuit simulation software (Simulink, Pspice, Psim) COMSOL , Solidworks , LabVIEW , AutoCAD, Photoshop

Publications (First author)

- [1] **Xiangyu Guo**, Nicolas herzig, Liang He. A Breast Cancer Palpation Simulator With the Capability of Independently Adjusting the Size and Stiffness of the Nodules. *IEEE Robotics and Automation Letters*(**Q2**), 2023 (To be submitted).
- [2] **Xiangyu Guo**, Ziyue Zhu. Review of Development and Application of Bidirectional LLC Converter. *International Conference on Energy, Power and Electrical Technology*, 2023 (Accepted, submitted for publication).
- [3] **Xiangyu Guo**, Wenqiang Liu, Wang Ren. Design and Research of a Tactile-sensing Breast Cancer Palpation Simulator. *Sensors and Microsystems (Chinese Core Journal)*, 2023 (Under Review).

Research experience

Design and research of breast cancer palpation simulator. - paper [1, 3] 2022.10-2023.8

- ♦ Simulating tumors within the diseased breast using pneumatic control and particle jamming effects to achieve adjustable stiffness.
- ♦ Decoupled the size and stiffness simulation, along with an upper computer interface.
- ♦ Designed a sensing circuit and system using PVDF piezoelectric material.
- ♦ Completed one English and one Chinese paper, and filed one utility model patent.
- ♦ Applied for a project from the National Ministry of Education's University-Industry-Research Innovation Fund.

Design and implementation of origami robotic arm control and sensing system 2023.7-Present

- ♦ Creating an origami robotic arm using biodegradable materials and coating it with conductive material to track arm movement by monitoring changes in electrical resistance.
- ♦ Calibrating by measuring the resistance of the robotic arm at various poses, thus achieving sensing capabilities, which can provide feedback for control, forming a closed-loop system.

Design and implementation of an FPGA-Based smart lighting system 2020.12-2021.5

- ♦ Developed a lighting system that can intelligently adjust the light, including hardware development and software program algorithm based on FPGA.
- ♦ Possessed the basic capabilities related to FPGA development, including the hardware description language Verilog and the working principle of related communication protocols

Design and research of electrostatic discharge sensor based on monopole antenna 2023.3-2023.6

- ♦ Participated in the design of the analog circuit for the electrostatic discharge sensor based on a monopole antenna.
- ♦ Explored the idea of utilizing this sensor for electrostatic tomography imaging, which includes developing a digital acquisition system and iterative software algorithms.

Investigation and research on bidirectional LLC DC-DC converters. - paper [2] 2022.12-2023.4

- ♦ Researched the topology structures, control strategies, and application scenarios of bidirectional LLC converters available in the market and literature.
- ♦ Simulated and tested certain key topology structures.
- ♦ Completed one review paper.

Curriculum Vitae

Awards (Captain and key participants)

Competition

- First Prize** in East China region in the 18th **China Graduate Electronics Design Contest** 2023
Third Prize in Zhejiang Gongshang University Mathematical Contest in Modeling 2023

Funding

- Zhejiang Gongshang University Postgraduate Scientific Research Innovation Fund 2023

Extra-curricular activities

Beijing Mobile University Sales Manager 2018.6-2019.5

- ♦ Responsible for the sales management of campus cards at major universities in Beijing.
- ♦ Manage sales and training for agents at all levels.

Minister of the Student Union's Rights and Interests Department 2018.7-2019.8

- ♦ Responsible for organizing and conducting interviews for the campus dormitory evening party.
- ♦ Received the Best Organization Award.