Curriculum Vitae

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

2023.2-2023.6	Research Assistant School of Mechanical and Electrical Engineering, **Beijing Institute of Technology (985)**, China
2023.8-2023.10	Research Assistant College of Engineering, Westlake University, China **Supervisor: Prof. Hanqing Jiang**

Research interests

Robotics (including soft robotics)
Soft actuators and sensors
Mechatronics
Embedded development
Control engineering

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++**, assembly language
Embedded Development:	**STM32**, **Arduino**, 51, **FPGA (Verilog)**
Other Software and tool	circuit simulation software (Simulink, Pspice, Psim) COMSOL, **Solidworks**, **LabVIEW**, AutoCAD, Photoshop

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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 (https://doi.org/10.1117/12.3004351).

[3] Design and Research of a Tactile-sensing Breast Cancer Palpation Simulator, 2023 (To be submitted).

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 two English 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.

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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

Scientific research project approval by **Zhejiang Provincial Department of Education** 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.