

# Run SHI

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## RESEARCH INTERSTS

My research interests mainly lie in electrocaloric and elastocaloric cooling(devices and materials) and electrocaloric. I am now focusing on the devices of elastocaloric cooling, exploring its potential for higher temperature difference. I achieve high score in Engineering Material and Fluid Mechanics.I also have a background in PTVs.

## RESEARCHS

- **High-k ferroelectric polymers for sustainable electrocaloric refrigeration**  Oct 2024 - Now  
Shanghai, China  
Advisor: Prof. XiaoShi Qian (Forward Interdisciplinary Research Center SJTU)
  - Preparation of electrocaloric material film (preparation of solutions, plating electrodes, etc.)
  - Measurement of polarity, electrocaloric properties, and dielectric properties of electrocaloric materials
- **Cascade-unit Elastocaloric Cooling Regenerator**  Jun 2024 - Sep 2024  
Karlsruhe, Germany  
Advisor: Dr. Jingyuan Xu (Insitute of Microstructure Technology KIT)
  - Build 3D models by Creo to build an elastocaloric experimental platform
  - Use Ansys to analyze machine parts to meet strength requirements
- **Three-dimensional rise of CO2 bubble in NaOH solution Dynamic Characteristics Research**  Aug 2023 - Mar 2024  
Shanghai, China  
Advisor: Prof. Qian Wang (Institute of Engineering Thermophysics SJTU)
  - Design and build carbon dioxide gas release experimental platform
  - Implemented Calibration analysis of different orifice plates for bubble PTVs, Dual view shot of bubbles

## EDUCATION

- **Shanghai JiaoTong University** Sep 2021 - Jun 2025  
Shanghai, China  
Bachelor
  - GPA: 3.38/4.30 (Ranking: 25/100) , Junior GPA: 3.75/4.30 (Ranking: 4/100)
- **Karlsruhe Institue of Technology** Apr 2024 - Sep 2024  
Karlsruhe, Germany  
Exchange Student

## PROJECTS

- **Trolly for automatic planting of pike seedings**  Sep 2023 - Jan 2024  
Shanghai , China  
Group Leader | Awarded Tencent 'Light' Technology Charity Creation Camp Investment(Top 1%)
  - Created 3D model, ensuring Feasibility of processing and installation sites
  - Created Physical Mechanical Structures, achieving Hollow drill seedling
  - Applied Physical Mechanical Structures in Desert and keep optimizing
- **Mass testing system design using Labview**  Dec 2023 - Jan 2024  
Shanghai , China  
Group Leader | Top 10% Excellent Group
  - Created data acquisition, data processing (low-pass filtering, array conversion, 2 waveform intercepts), and conversion of output voltage to quality results to complete the desired goal
- **Intelligent Logistics Handling Robot** Mar 2021 - Oct 2021  
Shanghai , China  
Group Leader | Top 10% Excellent Design and Report
  - Implemented Arduino trajectory, gripping debugging, and project report writing
  - Created mechanical gripper models by using SOLIDWORKS

## SKILLS

- **Experimental Skills:**
  - Dual-view field of view construction , Flow meter operation
  - Tensile mechanical testing and temperature measurement of highly elastic Ni filaments
  - Preparation of electrocaloric material film (preparation of solutions, plating electrodes, etc.), measurement of polarity, electrocaloric properties, and dielectric properties of electrocaloric materials
- **Programming:** C++ , Python , HTML
- **Professional Tools:** SOLIDWORKS , Creo , Matlab , Labview , Latex , Ansys , Comsol , UGNX , Find , Arduino
- **Languages:** Mandarin(Native) , English(Tofel 102/120) , German(Basic)

## REFERENCES

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1. **Dr. Jingyuan Xu**

Head of “ZEco Thermal Lab”

Karlsruhe Institute of Technology / Institute of Microstructure Technology

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*Relationship: [Research Supervisor]*