Ziqi Guo

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Education

Purdue University — West Lafayette, IN, USA
Ph.D. in Mechanical Engineering; GPA: 4.00/4.00 — *Sep. 2021 – Jun. 2026 (Expected)*

Huazhong University of Science & Technology (HUST) — Wuhan, China
*B.E. in Energy & Power Engineering (**Honours Degrees**); GPA: 3.99/4.00, Rank: 1/221* — *Sep. 2017 – Jun. 2021*

Publications

7. Ziqi Guo, Zherui Han, Dudong Feng, Guang Lin*, and Xiulin Ruan*. Accelerated First-principles Prediction of Thermal Conductivity and Radiative Properties through Maximum Likelihood Estimation of Phonon Scattering Rates. *In Review.*

6. Ziqi Guo, Prabudhya Roy Chowdhury, Zherui Han, Yixuan Sun, Dudong Feng, Guang Lin*, and Xiulin Ruan*. Fast and Accurate Machine Learning Prediction of Phonon Scattering Rates and Lattice Thermal Conductivity. *npj Computational Materials, Jun. 2023.*

5. Andrea Felicelli, Ioanna Katsamba, Fernando Barrios, Yun Zhang, Ziqi Guo, Joseph Peoples, George Chiu*, and Xiulin Ruan*, Thin layer lightweight and ultrawhite hexagonal boron nitride nanoporous paints for daytime radiative cooling, *Cell Reports Physical Science, Oct. 2022.*

4. Song He, Zhengyuan Ma, Weizhong Deng, ZiKang Zhang, Ziqi Guo, Wei Liu, Zhichun Liu*. Novel flat plate loop heat pipe with dual evaporators for energy-efficient systems of cooling multiple heat sources. *Energy Reports, Nov. 2022.*

3. Sijie Li[1], Ziqi Guo[1], Jacob B Ioffe, Yunfei Hu, Yi Zhen*, Xin Zhou*. Autism_genepheno: Text mining of gene-phenotype associations reveals new phenotypic profiles of autism-associated genes. *Scientific Reports, Jul. 2021.*

2. Sorting System Based on RFID Positioning Technology. 2019SR1151524. *Software Copyright filed Nov. 2019.*

1. Grab-type flexible sorting method based on RFID spatial positioning technology. CN 201910875139.3. *Patent filed Sep. 2019.*

Research Experience

Nanoscale Energy Transport and Conversion Laboratory — Purdue
Research Assistant, supervised by Prof. Xiulin Ruan — *Sep. 2021 – Present*

- Currently using multiscale, multiphysics simulation and machine learning approaches to investigate the thermal and optical properties of materials.
- Built the first machine learning model that can predict phonon scattering rates and thermal conductivity at the experimental and first principles accuracy level, with up to two orders of magnitude acceleration.

Maizie Zhou Lab — Vanderbilt University
Research Intern, supervised by Prof. Xin Zhou — *Apr. 2020 – May. 2021*

- Proposed an innovative text mining pipeline to identify sentence-level mentions of autism-associated genes and phenotypes in literature through natural language processing methods.

Thermal Science and Engineering Lab — HUST
Research Assistant, supervised by Prof. Zhichun Liu — *Jan. 2018 – May. 2021*

- Designed a high-performance liquid-based electrocaloric cooling system.
- Determined a novel way to modify the capillary core into super-hydrophilic and super-hydrophobic segments to reduce the thermal resistance of heat pipes.
- Proposed innovative dual flat plate loop heat pipe that can cool multiple heat sources in a wide range of heat loads.

Awards & Achievements

Ross Fellowship: For Ph.D. student with academic excellence. Purdue.

National Scholarship: Top 1% among all undergraduates nationwide. HUST. (Three consecutive years)

Commencement Address Speaker: Delivered the commencement address on behalf of all undergraduates in HUST.

Skills

Programming: Python, MATLAB, Fortran

Software: COMSOL, ANSYS, AutoCAD, SolidWorks

Technologies: Git, Arduino, Raspberry pi, PLC