

# Kangrui Zhou

zhoukangrui19@nudt.edu.cn — Github page

## EDUCATION

---

**National University of Defense Technology**, Changsha, China

Sep 2023 — Expected Dec 2025

Master in Aerospace Science and Technology

Cumulative GPA: 3.54/4.00

Selected Courses: *Principles and Practice of Artificial Intelligence (A)*, *Meteorological and Oceanographic Information Processing Experiment (A)*, *Computational Fluid Dynamics (A)*

Thesis Title: Deep Symbolic Regression-Driven Discovery and Mapping Learning of Thermo-Mechanical Coupling Models for Aerospace Vehicles

**National University of Defense Technology**, Changsha, China

Sep 2019 — July 2023

Bachelor in Aerospace Engineering

Cumulative GPA: 3.67/4.00

Selected Courses: *Advanced Mathematics (A)*, *College Physics (A)*, *Aerodynamics (A)*, *Methods of Mathematical Physics (A)*

## PUBLICATIONS

---

### Rapid Prediction of Thermal Stress via Domain Decomposition-based Hybrid Fourier Neural Operator

Kangrui Zhou, Wei Peng, Xiaoya Zhang, Xu Liu, Wen Yao

Engineering Applications of Artificial Intelligence, IF:7.5, 2025. (Published)

### Event-based Depth Estimation with Dense Occlusion

Kangrui Zhou, Taihang Lei, Banglei Guan, and Qifeng Yu

Optics Letters, IF:3.1, 2024. (Published)

### A Two-Stage Deep Symbolic Regression Approach for Physics Model Discovery

Kangrui Zhou, Wei Peng, Xiaoya Zhang, Jiahui Li, Weien Zhou, Wen Yao

The 9th China Systems Science Conference, 2025. (Oral)

## PROJECTS

---

### Discovery and Mapping Learning of High-Efficiency Thermo-Mechanical Predictive Models on Cross-Domain Variable-Configuration Vehicles

July 2024 — Dec 2027

I am in charge of developing algorithms for model discovery and mapping learning.

- **Model Discovery:** generate mathematical symbols one by one through recurrent neural network and add them to the expression. The rotational invariance constraints and dimensional constraints is used to reduce the searching space.
- **Mapping Learning:** decompose domain based on the frequency of data information. Use interpolation process low frequency subdomains and geometry deformation process high frequency subdomains improve the prediction precision.

## SELECTED AWARDS AND HONORS

---

**Outstanding Student** (Top 10%), National University of Defense Technology

July 2020

**Second Prize Scholarship** of Academic Excellence, National University of Defense Technology

Jan 2025

**National First Prize** of China College Students' Advanced Graphics Technology and Product Information Modeling Innovation Competition

Aug 2022

I am in charge of 3D modeling and 3D printing, using SolidWorks and UP Studio 3, separately.

**National Second Prize** of China Graduate Future Flight Vehicle Innovation Competition

Nov 2024

I am in charge of parametric modeling method of variable curved airfoil and participate in fabrication of variable-bend wings.

**National Third Prize** of China College Students' Energy Conservation and Emission Reduction Social Practice and Science and Technology Competition

Aug 2022

I am in charge of 3D modeling of a barbecue and participate in the experiments to test the energy-saving rate.

## SKILLS

---

- **Programming:** Python, Matlab
- **Software:** SolidWorks, AutoCAD, Pointwise