

# Dongge Jia

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[Homepage](#), [GitHub](#)

## SKILLS

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Imitation learning with NeRF-enhanced demonstrations

Visual autoregressive modeling

Deep reinforcement learning

ManiSkill 3 and RLBench

Numerical and analytical solver development for PDEs in mechanics

Multiphysics and multiscale modeling

## EDUCATION

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University of Pittsburgh (Pitt), Pennsylvania 2022–2024

**PhD Student** (Voluntarily Withdrawn Due to Mismatch of Interests)

Focus: Computational Mechanics

GPA: 4.0/4.0 (43 credit hours)

Graduate Courses: Introduction to Machine Learning (at Carnegie Mellon University via cross-registration); Mathematics of Data-Enabled Science and Engineering; among others

**Computer Science** College Credits through American Council on Education (ACE) 2024

Average Grade: 93.8/100 (12 credit hours)

Undergraduate Courses ([transcript link](#)): Operating Systems; Computer Architecture; Discrete Mathematics; Network System Design

**Shanghai Jiao Tong University** (SJTU, top 4 in China), Shanghai, China 2019–2022

M.S. in Civil Engineering

GPA: 3.76/4.0 (Rank: 2<sup>nd</sup> out of 29)

**Huazhong University of Science and Technology** (HUST, top 8 in China), Wuhan, China 2015–2019

B.Eng. in Civil Engineering

GPA for second to fourth years: 3.91/4.0 (Rank: 2<sup>nd</sup> out of 86)

Courses (Grades): Probability Theory and Mathematical Statistics (99/100); Numerical Methods (94/100); Advanced Programming Language (C++) (91/100); Database System Technology and Applications (94/100)

Exceptional Performance at China National College Entrance Examination (top 0.3%) 2015

## HONORS & AWARDS [https://donggejia.github.io/docs\\_store/Honors.pdf](https://donggejia.github.io/docs_store/Honors.pdf)

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Ministry of Education of China, 1 [Global Gold Award \(top 0.1%\)](#) + 2 Shanghai Gold Award (top 1%) in [the China International College Students' Innovation Competition](#) (Project 1: Digital Twin System for Bridge Maintenance; Project 2: Modified Carbon Fiber Mineral-based Reinforcements), 2024

SJTU, COSCO SHIPPING Scholarship (top 2.5%), 2021

SJTU, Yuqiu Yang Scholarship (top 2.5%), 2020

SJTU, Qingyang Jin Scholarship (top 3%), 2020

SJTU, First-Class Research Fellowship, 2019, 2020, 2021 (three times)

HUST, Outstanding Graduate, 2019

HUST, **Star of Learning and Innovation** (top 0.5%), 2018

HUST, **Merit Student** (top 3%), 2017, 2018 (twice)

Ministry of Education of China, **National Encouragement Scholarship** (top 3%), 2017, 2018 (twice)  
HUST, Excellent Student Cadre, 2017, 2018 (twice)  
HUST, Excellent College Assistantship, 2017  
HUST, Excellent Singer, 2016

## **RESEARCH EXPERIENCES** <https://donggejia.github.io/>

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### **Imitation Learning for Generalizable Long-Horizon Visuomotor Control** 2024

Designed a generalizable neural field (GNF) to reconstruct 3D voxel-based demonstrations enriched with semantic information;  
Decomposed GNF into subskills to form a Chain-of-Thought (CoT) for task planning;  
Developed a Transformer-based model that predicts actions guided by CoT using learnable prompts and hybrid masking.

### **Task Offloading for Networked UAVs Using Deep Reinforcement Learning** 2024

Developed deep reinforcement learning algorithms—TD3, PPO, and DDPG—for task offloading.

### **Landmark Localization in Medical Images** 2024

Implemented a convolutional Spatial Configuration-Net (SCN) model for accurate hand joint localization and labeling.

### **Solving PDEs for Thermal-Mechanical Modeling of Cervical Spine, Concrete, and Soft Soil** 2018–2023

Conducted inverse property optimizations for the biomechanical modeling of cervical spine;  
Created efficient solutions for the thermal-mechanical modeling of concrete and soft clay.

## **PUBLICATIONS**

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### **Peer-Reviewed Articles**

- [5] **Jia, D.**, Xie, J. and Atanasov, N. NVactor: Next-scale visual modeling of multi-task robotic manipulation. (aim at IROS 2025)
- [4] Zhang, X., **Jia, D.** and Xie, J. Task offloading for networked UAVs using deep reinforcement learning. (in preparation)
- [3] **Jia, D.**, Brigham, J. C., and Fascetti, A. An efficient static solver for the lattice discrete particle model. *Computer-Aided Civil and Infrastructure Engineering*, 39, 3531–3551, 2024. (**5-year IF: 10.8, 97th percentile** in “Computational Theory and Mathematics”) <https://doi.org/10.1111/mice.13306>
- [2] Zhu, Y. and **Jia, D. (two co-first authors)**, Brigham, J. C., and Fascetti, A. Coupled Lattice Discrete Particle Model for the simulation of water and chloride transport in cracked concrete members. *Computer-Aided Civil and Infrastructure Engineering*, online early view before inclusion in an issue, 2024. (**5-year IF: 10.8, 97th percentile** in “Computational Theory and Mathematics”) <https://doi.org/10.1111/mice.13385>
- [1] **Jia, D.**, Gao, W., Duan, D., Yang, J., and Dai, J. Full-range behavior of FRP-to-concrete bonded joints subjected to combined effects of loading and temperature variation. *Engineering Fracture Mechanics*, 254, 107928, 2021. (5-year IF: 4.8, 90th percentile in “Mechanical Engineering”) <https://doi.org/10.1016/j.engfracmech.2021.107928>

### **Conference Presentations (without Proceedings)**

- [2] **Jia, D.**, Ouhsousou, S., LeVasseur, C. M., Shaw, J., Anderst, W., and Brigham, J. C. In vivo subject-

specific estimation of cervical spine disc material properties. Presentation at *the 8th International Conference on Computational and Mathematical Biomedical Engineering (CMBE)*, Arlington, Virginia, 2024. [https://donggejia.github.io/docs\\_store/Spine\\_CMBE\\_2024.pdf](https://donggejia.github.io/docs_store/Spine_CMBE_2024.pdf)

[1] **Jia, D.**, Zhu, Y., Brigham, J. C., and Fascetti, A. A novel dual lattice discrete particle model for multiphysics simulation of coupled mechanical and transport behavior in concrete members subjected to long-term loading. Presentation at *the 16th World Congress on Computational Mechanics and 4th Pan American Congress on Computational Mechanics (WCCM-PANACM)*, Vancouver, Canada, 2024. [https://donggejia.github.io/docs\\_store/Multiphysics\\_WCCM.pdf](https://donggejia.github.io/docs_store/Multiphysics_WCCM.pdf)

### **Undergraduate Research**

[2] Xu, D. (advisor), and **Jia, D.** MATLAB-based software: Long-term settlement calculation software for soft clay foundation considering different creep effects. *China Copyright Administration*, No. 04768603, 2019. [https://donggejia.github.io/docs\\_store/copyright.png](https://donggejia.github.io/docs_store/copyright.png)

[1] Xu, D. (advisor), **Jia, D.**, and Zheng, Y. One-dimensional elastic visco-plastic nonlinear consolidation model of soft clay under cyclic loading. *Chinese Preprint*, 2018. [https://donggejia.github.io/docs\\_store/elastic-visco-plastic-nonlinear-consolidation-model-final-submit.pdf](https://donggejia.github.io/docs_store/elastic-visco-plastic-nonlinear-consolidation-model-final-submit.pdf)

### **PROGRAMMING**

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Proficient in PyTorch, Python, Julia, C++, MATLAB, and Mathematica  
Familiar with VBA, SQL, and Fortran

Developed three open-source software tools, available on my [GitHub](#) repository:

#### **LDPMLab**

The first open-source, multi-functional Julia package for the Lattice Discrete Particle Model, integrating my work in multiphysics modeling and featuring both static and dynamic solvers

#### **SpatialConfiguration-Net Using PyTorch**

An efficient implementation of SpatialConfiguration-Net with a more structured and concise codebase

#### **CalcuSettlement**

MATLAB-based software for calculating settlements of soft clay foundations under diverse dynamic loading conditions, incorporating different creep effects

### **INTERNSHIPS**

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**Research Assistant Intern** at San Diego State University Research Foundation, California 2024

Researching imitation learning for robotic manipulation and deep reinforcement learning for task offloading among networked UAVs.

**Computer Engineering Intern** at [Alibaba Cloud](#), Hangzhou, China Summer 2022

Developed a **Recurrent Neural Network (RNN)** model to predict energy consumption patterns in a server room of an Internet Data Center.

**Industry Analysis Intern** at China Industrial Securities, Shanghai, China Summer 2021

Conducted an in-depth analysis of post-COVID-19 real estate market trends in China and the US, identifying emerging opportunities and growth stocks.

### **SERVICE**

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**Reviewer for Academic Journals**, *IEEE Transactions on Systems, Man and Cybernetics: Systems; Computer-Aided Civil and Infrastructure Engineering*

<b>Business Manager</b> , International Engineering Students' Organization at Pitt	2024
<b>Teaching Assistant</b> , CEE 1330 - Introduction to Structural Analysis at Pitt	Spring 2023
<b>Group Leader</b> , 10th Future Entrepreneur Training Camp at HUST	2018
<b>Director</b> , Publicity Department of the Student Union at HUST	2017–2018

## **CERTIFICATES**

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[Alibaba Cloud Certifications](#): IT Technical Service; Data Center Infrastructure Engineering

China Computer Rank Certifications: Database Technology; C++; MySQL

## **REFERENCES**

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