Dongge Jia

Tel: +1 (412)-657-1284, Email: doj14@pitt.edu
Homepage, GitHub

SKILLS

Imitation learning with NeRF-enhanced demonstrations

Visual autoregressive modeling

Deep reinforcement learning

ManiSkill 3 and RLBench

Energy minimization (solving PDEs) in mechanics/biomechanics

Multiphysics and multiscale modeling

EDUCATION

University of Pittsburgh (Pitt), Pennsylvania 2022–2024
PhD Student
Focus: Computational Mechanics (supervised research) and Machine Learning (without advisor)
Biomedical Informatics Certificate Program
GPA: 4.0/4.0 (43 credit hours)
I am now fully dedicated to pursuing AI and plan to transition from my current PhD program this summer, with the full support of my current PhD advisors.
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 ACE and Thomas Edison State University 2024
Average Grade: 93.8/100 (12 credit hours)
Undergraduate Courses (transcript link): Operating Systems; Computer Architecture; Discrete Mathematics; Network System Design
Udemy Online Course: Data Structures and Algorithms: In-Depth using Python

Shanghai Jiao Tong University (SJTU), Shanghai, China 2019–2022
M.S. in Civil Engineering
GPA: 3.76/4.0 (Rank: 2nd out of 29)

Huazhong University of Science and Technology (HUST), Wuhan, China 2015–2019
B.Eng. in Civil Engineering
GPA for second to fourth years: 3.97/4.0 (Rank: 2nd out of 86)
My first-year grades were not strong due to health challenges
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)

National University of Singapore (NUS), Singapore Summer 2018
Summer Program: "Issues in Infrastructural Development in Singapore"

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

HONORS & AWARDS https://donggejia.github.io/docs_store/Honors.pdf

Nanyang Technological University, Singapore, 3rd Kumar Sustainability & Innovation Prize (20000 USD), 2025

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/

Imitation Learning for Generalizable Visuomotor Control 2024

Designed a generalizable neural feature field (GNF) to reconstruct 3D voxel-based demonstrations enriched with semantic understanding;
Proposed the next-scale feature refinement of GNF for multi-task robotic policy learning.

Task Offloading for Networked UAVs Using Deep Reinforcement Learning 2024

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

Landmark Localization in Medical Images 2024

Implemented a convolutional SpatialConfiguration-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

Peer-Reviewed Articles

[5] **Jia, D.**, Xie, J. and Atanasov, N. NSactor: Next-scale vision-language feature refinement for multi-task manipulation learning. (In preparation, target at CoRL 2025)

Training: https://wandb.ai/kimjdg1025-san-diego-state-university/gnfactor?nw=nwuserkimjdg1025

Paper draft: https://donggejia.github.io/docs_store/Dongge_IROS2025.pdf

[4] Zhang, X., **Jia, D.,** Xie, J., Liu X. Energy-efficient task offloading and resource allocation: a deep reinforcement learning framework for networked airborne computing with random multi-UAV mobility. (Under review at *Computer Communications*) https://donggejia.github.io/docs_store/Wimob.pdf

[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)

[3] **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

[2] **Jia, D.**, Brigham, J. C., and Fascetti, A. An efficient static solver for the lattice discrete particle model. Presentation at *Engineering Mechanics Institute Conference and Probabilistic Mechanics & Reliability Conference (EMI/PMC 2024)*, Chicago, Illinois, 2024. https://donggejia.github.io/docs_store/EMI.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

Poster

[1] Ouhsousou, S., **Jia, D.**, LeVasseur, C., Shaw, J., Donaldson, W., Lee, J. Y., Brigham, J. C., and Anderst, W. In vivo subject-specific estimation of cervical spine disc material properties. *2025 Orthopaedic Research Society Annual Meeting*, Phoenix, Arizona, 2025. https://donggejia.github.io/docs_store/Poster.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

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

PROGRAMMING

I am an experienced programmer with 9 years of consistent experience working with various programming languages.

Proficient in Python, PyTorch, 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

Paid **Intern** on the ExpandAI@SD Project at SDSU Research Foundation 2024–2025

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

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

Business Manager, International Engineering Students' Organization at Pitt 2024

Teaching Assistant, CEE 1330 - Introduction to Structural Analysis at Pitt Spring 2023

Group Leader, 10th Future Entrepreneur Training Camp at HUST 2018

Director, Publicity Department of the Student Union at HUST 2017–2018

CERTIFICATES

Alibaba Cloud Certifications: IT Technical Service; Data Center Infrastructure Engineering

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

REFERENCES

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