Stanford

Hanfeng Zhai

Ph.D. Student in Mechanical Engineering, admitted Autumn 2023

Bio

BIO

Working on combining multiscale and multiphysics computational modeling with scientific machine learning and design optimization for mechanical and materials design in various engineering fields in biomedicine, semiconductors, and manufacturing. Previous works include Bayesian optimization for antibiofilm surfaces, porous metamaterials, physics-informed learning for bubble dynamics, molecular dynamics of graphene, etc. Have industrial experience in multiscale modeling for semiconductor manufacturing at Tokyo Electron.

EDUCATION AND CERTIFICATIONS

- M.S., Cornell University , Mechanical Engineering (2023)
- B.S., Shanghai University , Theoretical and Applied Mechanics (2021)

LINKS

- Personal Web: https://hanfengzhai.github.io

Research & Scholarship

LAB AFFILIATIONS

- Wei Cai, Micro & Nano Mechanics Group (9/6/2023)

Professional

WORK EXPERIENCE

- Research Scientist Intern - Tokyo Electron (May 2023 - August 2023)
- Research Intern - Institute of Mechanics, CAS (May 2021 - August 2021)

Publications

PUBLICATIONS

- **Benchmarking inverse optimization algorithms for materials design** *APL MATERIALS*
  Zhai, H., Hao, H., Yeo, J.
  2024; 12 (2)

- **Controlling biofilm transport with porous metamaterials designed with Bayesian learning** *JOURNAL OF THE MECHANICAL BEHAVIOR OF BIOMEDICAL MATERIALS*
  Zhai, H., Yeo, J.
  2023; 147 (106127)

- **Computational and data-driven modelling of solid polymer electrolytes** *DIGITAL DISCOVERY*
  Wang, K., Shi, H., Li, T., Zhao, L., Zhai, H., Korani, D., Yeo, J.
  2023

- **Multiscale Mechanics of Thermal Gradient Coupled Graphene Fracture: A Molecular Dynamics Study** *INTERNATIONAL JOURNAL OF APPLIED MECHANICS*
  Zhai, H., Yeo, J.
  2023; 15 (06)

- **Computational Design of Antimicrobial Active Surfaces via Automated Bayesian Optimization** *ACS BIOMATERIALS SCIENCE & ENGINEERING*
  Zhai, H., Yeo, J.
  2023; 9 (1): 269-279

- **Predicting micro-bubble dynamics with semi-physics-informed deep learning** *AIP ADVANCES*
  Zhai, H., Zhou, Q., Hu, G.
  2022; 12 (3)

- **Controlling Chaos in Van Der Pol Dynamics Using Signal-Encoded Deep Learning** *MATHEMATICS*
  Zhai, H., Sands, T.
  2022; 10 (3)