

HANFENG ZHAI

Bachelor student at Shanghai University

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[[GitHub](#)] · [[ResearchGate](#)] · [[LinkedIn](#)] · [[Twitter](#)] · [[Biosketch](#)] · [[WeChat](#)]



EDUCATION

- **M.S., Mechanical Engineering**
Cornell University Sept, 2021 - June, 2023
ITHACA, NY Supervisor: Jingjie Yeo
- **B.S., Theoretical & Applied Mechanics**
Shanghai University Sept, 2017 - June, 2021
SHANGHAI, CHINA Supervisor: Guohui Hu
THESIS: *Predicting micro-bubble system dynamics with physics-informed deep learning.* [[Chinese preprint](#)]

AWARDS & RECOGNITION

- Excellent Graduate of Shanghai May, 2021
Shanghai University [[Namelist](#)]
- Second Class Award Jan, 2021
The 3rd Undergraduate Academic Forum Shanghai University
- Outstanding Student Nomination Dec, 2020
Shanghai University [[Namelist](#)]
- Top Class Academic Scholarship Nov, 2020
School of Mechanics and Engineering Science [[Namelist](#)]
- Arts and Sports Scholarship Nov, 2020
School of Mechanics and Engineering Science [[Namelist](#)]
- Athletic Scholarship Nov, 2018
Shanghai University American Football Team [[Namelist](#)]
- Outstanding Student Nomination July, 2018
Shanghai University [[Namelist](#)]

SKILLS

- **Coding & Programming**
Python, Matlab & Octave, Mathematica, C++, HTML, L^AT_EX, Bash, MPI, TensorFlow, PyTorch.
- **Computer Systems**
Ubuntu, MacOS, Windows 7 & 10.
- **Simulation Softwares**
COMSOL Multiphysics, OpenFOAM, LAMMPS, ANSYS workbench & APDL, Abaqus CAE.
- **Knowledge & Theories**
Computational Fluid Dynamics, Fluid & Solid Mechanics (Elasticity & Plasticity), Structural Mechanics, Machine Learning & Deep Learning, etc.

PUBLICATION

- H. Zhai and G. Hu*. (2021) "Inferring micro-bubble dynamics with physics-informed deep learning". *arXiv preprint*. arXiv:2105.07179.

SELECTED PROJECT [[Full projects list](#)]

- **Mechanical Properties of Solid Biomaterials**
 1. Structural design of composite materials with superior mechanical behaviors: lesson from the microstructure of nacre and enamel. [[Report](#)]
CAD Application in Structural Mechanics, 2020
 2. Formulation and application of rate-independent stress update algorithm of hydrostatic pressure: elastoplastic yielding in composite. [[Report](#)]
Plasticity Theory, 2020
 3. An investigation of the elastoplastic nature of ITD on the toughness of the dentin microstructure. [[Report](#)]
SHU Summer Research Program, 2020

SOFTWARE

- **BubbleNet**
A deep learning package for inferring microbubble dynamics with physics-informed neural networks.
Environment: Python, Matlab, TensorFlow
[[Website](#)] [[Code](#)] [[Paper](#)] [[Video](#)]

PRESENTATION

- **Computation Methods for Applied Mechanics Problem.**
The 3rd Undergraduate Academic Forum, Shanghai University. Dec. 30th, 2020. [[Poster](#)] [[Paper](#)] [[News](#)]
- **A brief introduction of deep learning algorithms applied to mechanics.** Prof. Zhansheng Guo's Lab, Shanghai University. Apr. 20th, 2021. [[Slides](#)]

OTHER ACTIVITIES

- Won 1st Place (Apr, 2018) and 3rd place (Apr, 2019) in *Shanghai University Bodybuilding Contest*.
- Played Defensive End & Linebacker at Shanghai University Bombers American football team; joined *Russell Wilson football training camp* (July, 2018). [[News](#)]
- Served as scientific editor during winter break (Jan, 2021 - Mar, 2021) at QbitAI. ([[1](#)], [[2](#)], [[3](#)], [[4](#)], [[5](#)])

Last update: May 20th, 2021