

HANFENG ZHAI

Bachelor student at Shanghai University

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GitHub · ResearchGate · LinkedIn · Twitter · Birth: Dec. 22nd, 1998, Beijing, China



EDUCATION

- **B.S., Theoretical & Applied Mechanics**
Shanghai University 09/2017 - 06/2021
GPA: 3.44/4 · 86.65/100 Supervisor: Guohui Hu
THESIS: *Physics-Informed Deep Learning on Multiscale Fluid Dynamics*

AWARDS & RECOGNITION

- Second Class Award 01/2021
The 3rd Undergraduate Academic Forum, Shanghai University
- Outstanding Student Nomination 12/2020
School of Mechanics and Engineering Science, SHU
- Top Class Academic Scholarship 11/2020
School of Mechanics and Engineering Science, SHU
- Arts and Sports Scholarship 11/2020
School of Mechanics and Engineering Science, SHU
- Athletic Scholarship 11/2018
Shanghai University Bombers American Football Team
- Outstanding Student Nomination 07/2018
Residential College, Shanghai University

SKILLS

- **Coding & Programming**
Python, Matlab, C++, Mathematica, HTML, \LaTeX , Bash, MPI, TensorFlow, PyTorch, DeepXDE.
- **Simulation Softwares**
Lammps, OpenFOAM, ANSYS workbench, Abaqus.
- **Research & Theories**
Computational Fluid Dynamics, Fluid & Solid Mechanics, Machine Learning & Deep Learning, Dissipative Particle Dynamics, Molecular Dynamics, etc.

RESEARCH INTERESTS

- Data-driven deep learning and computational methods applied to multiscale fluidic problems.
- Microscale and mesoscale biomechanical and biophysics problems.

PUBLICATIONS

- S. Liu, H. Zhai, Y. Xu, B. An*, D. Zhang*. (2021) "The Role of Rod Decussation on Crack Deflection in Enamel". Submitted to *Biomechanics and Modeling in Mechanobiology*. (Under Review)

PROJECTS

- **Mechanical Properties of Solid Biomaterials**
 1. Structural design of composite materials with superior mechanical behaviors: lesson from the microstructure of nacre and enamel. [PDF]
CAD Application in Structural Mechanics, 2020
 2. Formulation and application of rate-independent stress update algorithm of hydrostatic pressure: elastoplastic yielding in composite. [PDF]
Plasticity Theory, 2020
 3. An investigation of the elastoplastic nature of ITD on the toughness of the dentin microstructure. [PDF]
SHU Summer Research Program, 2020
- **Machine Learning on Fluid Dynamics**
 1. Investigation of the mechanics of the airfoil: application of machine learning in the noise prediction of NACA 0012. [PDF]
Fluid Physics on Flight, 2020
 2. An optimized algorithm for the prediction of the water emptying time on BPNN. [PDF]
Online Research Program, 2020

For more details, please visit <https://hanfengzhai.net/project>

PRESENTATIONS

- **Computation Methods for Applied Mechanics Problem.**
The 3rd Undergraduate Academic Forum, Shanghai University. Shanghai, China. Dec. 30th, 2020. [Poster] [Paper]

OTHER ACTIVITIES

- Won 1st Place (05/2018) and 3rd place (05/2019) in *Shanghai University Bodybuilding Contest*.
- Played Defensive End & Linebacker at Shanghai University Bombers football team; joined *Russell Wilson football training camp* (07/2018). [News]
- Served as scientific editor during winter break (01/2021-03/2021) at QbitAI. ([1], [2], [3], [4])