

HANFENG ZHAI

Bachelor student at Shanghai University

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EDUCATION

- **M.S., Mechanical Engineering**
Cornell University 09/2021 - 06/2023
ITHACA, NY
- **B.S., Theoretical & Applied Mechanics**
Shanghai University 09/2017 - 06/2021
SHANGHAI, CHINA 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 & Octave, Mathematica, C++, HTML, \LaTeX , Bash, MPI, TensorFlow, PyTorch.
- **Computer Systems**
Ubuntu, MacOS, Windows 7 & 10.
- **Simulation Softwares**
COMSOL Multiphysics, OpenFOAM, LAMMPS, ANSYS workbench & APDL, Abaqus CAE.

RESEARCH INTERESTS

- Physics-informed deep learning and computational methods applied to multiscale fluidic problems, i.e. biophysics, complex fluids, soft matter, etc.

PUBLICATIONS

- S. Liu, H. Zhai, Y. Xu, B. An*, & D. Zhang*. (2021) *The Role of Rod Decussation on Crack Deflection in Enamel*. Submitted.

PROJECTS [\[full list\]](#)

- **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 of 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

PRESENTATIONS

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

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 American football team; joined *Russell Wilson football training camp* (07/2018). [\[News\]](#)
- Served as scientific editor during winter break (01/2021-03/2021) at QbitAI. ([\[1\]](#), [\[2\]](#), [\[3\]](#), [\[4\]](#), [\[5\]](#))

Last update: π day, 2021