Haozhe Zhang

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EDUCATION

Ph.D. candidate in **Mechanical Engineering**
University of Virginia (GPA: 3.62)
08/2018 – Present (expected graduation: 03/2023)
B.S. in **Theoretical and Applied Mechanics**
University of Science and Technology of China
09/2014 – 06/2018

EXPERIENCES

Packaging Engineer Intern, *Western Digital, Milpitas, CA* 05/2022 – 08/2022

- Developed **failure criteria** (new to WD) for SSD drop test by correlating test performance with FEA data with machine learning models (including classification and regression). This criterion is to design for reliability (**DfR**) and cut the expenditure on the SSD drop test by more than 90% (**Reported to VP**).
- Designed an experiment to detect acoustic emission signals for in-situ diagnosing the crack initiation (new method to WD) in packages/NANDs/PCBs during 3/4-point bending tests.
- Conducted **FEA** (**ANSYS**) for SSD drop tests to analyze the shock impact and the post-shock vibration to failure with automation by **python**. And developed design of experiments (**DoE**) based on FEA.

Research Assistant, *University of Virginia, Charlottesville, VA* 08/2018 – Present

- Designed mechanical-driven materials/structures with optical/acoustic/thermal/electrical functions for applications in phononic/optical/healthcare/wearable structure and devices with **AutoCAD/Solidworks**.
- Developed state-of-art numerical models with **solid mechanics framework** to analyze the mechanism of the structures and quantitively predicted the corresponding optical/acoustic/electrical properties.
- Conducted multiphysics **FEA** simulations **(Abaqus/COMSOL/LS-Dyna)** and **experiments** (3D printing, mechanical testing) to analyze and evaluate the reliability.
- Trained **neutral networks** with FEA data for structural instability/failure with 88% accuracy.
- Published 4+ articles on top journals as **first/co-first author**, including: 3D-printed mechanical Janus structure (***Advanced Materials, IF=32***), printed corneal sensor (***Nature Communications, IF=18***); and 6+ articles as co-worker, including: skin sensor (*Advanced Materials*), confined water (*Matter, IF=20*).

Teaching Assistant, *University of Virginia, Charlottesville, VA* 09/2019 – Present

- Mentored 500+ UVA mechanical and aerospace undergrads for 6 core courses including 3 Labs.
- Communicated with students and instructors to develop in-class experiments and class materials.
- Delivered 40+ lectures/recitations to classroom with 30+ students each.

Research Assistant Intern, *University of Colorado, Boulder, Boulder, CO* 06/2017 – 09/2017

- Conducted crack propagation experiments of VHB gels and hydrogels, and attached 1500+ glitters at the crack tip for the strain field by tracing their trajectories. (**Fracture mechanics**)
- Developed a Matlab image processing program to dynamically trace those glitters within 3% error.

Undergrad Researcher, *University of Science and Technology of China, Anhui, China* 02/2016 – 06/2018

- Modeled the interface instability between an ultrathin soft film and a rigid ball via **FEA (Abaqus)**.
- Conducted experiments on self-organized monolayer cells on a confined pattern, and observed the rotation speed and actin motion via **AFM**/confocal laser scanning microscopy.

SKILLS

Coding Proficiencies: Matlab, Python (Pytorch/NumPy/panda/sqlite3), C, R-Studio, SQL, Git, Fortran
Finite Element Analysis: Abaqus, COMSOL, ANSYS, LS-Dyna
3D Modeling: Solidworks, AutoCAD, SpaceClaim