Haozhe Zhang

Ph.D.

Cell Engineer @ Tesla Inc.,

zhang.hz6666@gmail.com | Homepage | Google Scholar | LinkedIn | (434)-328-9154

EDUCATION

PhD in Mechanical Engineering, University of Virginia 2018 - 2023

BS in Theoretical Mechanics, University of Science and Technology of China 2014 - 2018

EXPERIENCES

Sr. Cell Modeling Engineer, *Tesla, Palo Alto, CA* 07/2023 – Present

- Develop mechanical models and advance the understanding of the interaction of cell mechanicals to performance and degradation modes in cells.
- Derive theoretical solutions for understanding cell failure.
- Advance material card generation for crash simulation.

Research Assistant, *University of Virginia, Charlottesville, VA* 08/2018 – 06/2023

- Designed multiple mechanical-driven engineering structures and devices, including healthcare devices, acoustic structures, and optical structures, with superior physical functionalities.
- Developed multiple theoretical models for solving physical problems and PDEs, which were further validated via experimental and computational studies with high precision.
- Conducted multiphysics FEA simulations, and comprehensive experiments, including 3D printing and mechanical testing, to test the mechanical properties and analyze the reliability of our designs.

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

- Developed a new failure criterion for SSD drop test by correlating test performance and simulation via machine learning. This criterion will cut the test cost on the drop test by ~ 90%.
- Conducted FEA with ANSYS for the reliability of NAND packages and proved guidelines for the design team to address customs' feedback. Developed experiments (DoE) based on the FEA results.
- Developed an acoustic detection method for locating in-situ crack initiation in packages, NANDs, and PCBs during three/four-point bending tests.

SELECTED HONORS & AWARDS

Chinese Government Award for Outstanding Self-financed Students Abroad, USA 2023

Outstanding Student Scholarship, University of Science and Technology of China 2017

Outstanding Student Scholarship, University of Science and Technology of China 2016

The First Price in Mechanics Competition, Anhui 2016

Outstanding New Student Scholarship, University of Science and Technology of China 2014

SELECTED PUBLICATION (# denotes equal contribution)

1. Seokkyoon Hong#, **Haozhe Zhang#**, Junsang Lee#, Tianhao Yu, Seungse Cho, Taewoong Park, Julia Walsh, Byeong Guk Jeong, Joshua Jeremiah Kim1, Hyowon Lee, Dong Rip Kim, Baoxing Xu, Chi

Hwan Lee. Spongy Ag foam of strain gauges for wearable sensing applications. (Under review by *Science Advances*)

2. **Haozhe Zhang**, Baoxing Xu. Instability of super lattice structure enabled by soft-hard integration. (preparing submit to *IJSS*)
3. Yuan Gao, Mingzhe Li, Chi Zhan, **Haozhe Zhang**, Mengtian Yin, Weiyi Lu, Baoxing Xu. Nanoconfined Water-Ion Coordination Network for Flexible Energy Dissipation Device, Advanced Materials, 2303759, (featured as raising stars).
4. **Haozhe Zhang#,** Weizhu Yang#, Qingchang Liu#, Yuan Gao, Zhufeng Yue, Baoxing Xu. Mechanical Janus Structures by Soft-Hard Material Integration. ***Advanced Materials,*** 2208339, (featured as inside cover).
5. **Haozhe Zhang,** Baoxing Xu. Soft-hard material integration enabled programmable robotic locomotion. ***Applied Physics Letters*** 121(2022)214104
6. Yuan Gao, Mentian Yin, **Haozhe Zhang**, Baoxing Xu. Electrically Suppressed Outflow of Confined Liquid in Hydrophobic Nanopores. ***ACS Nano***. 16(2022)9420-9427
7. Mingyu Sang, Kyowon Kang, Yue Zhang, **Haozhe Zhang**, Kiho Kim, Myeongki Cho, Jongwoon Shin, Jung-Hoon Hong, Taemin Kim, Shin Kyu Lee, Woon-Hong Yeo, Jung Woo Lee, Taeyoon Lee, Baoxing Xu and Ki Jun Yu. Ultra-high Sensitive Au-doped Silicon Nanomembrane Based Wearable Sensor Arrays for Continuous Skin Temperature Monitoring with High Precision. ***Advanced Materials***. 34(2022)2105865, (featured as raising stars).
8. Yuan Gao, Mingzhe Li, **Haozhe Zhang**, Yue Zhang, Weiyi Lu, Baoxing Xu. Anomalous solid-like necking of confined water outflow in hydrophobic nanopores. ***Matter***. 5(2022)266-280
9. Kyunghun Kim#, Ho Joong Kim#, **Haozhe Zhang#,** Woohyun Park, Dawn Meyer, Min Ku Kim, Bongjoong Kim, Heun Park, Baoxing Xu**,** Pete Kollbaum, Bryan W Boudouris, Chi Hwan Lee. All-printed stretchable corneal sensor on soft contact lenses for noninvasive and painless ocular electrodiagnosis. ***Nature Communications*** 12 (2021) 1544
10. Shifeng Nian, Jinchang Zhu, **Haozhe Zhang**, Zihao Gong, Guillaume Freychet, Mikhail Zhernenkov, Baoxing Xu^, Li-Heng Cai. Three-Dimensional Printable, Extremely Soft, Stretchable, and Reversible Elastomers from Molecular Architecture-Directed Assembly. ***Chemistry of Materials***. 33(2021)2436-2445. (featured as cover)
11. **Haozhe Zhang**, Weizhu Yang, Baoxing Xu. Rotation Mechanics of Optical Scatters in Stretchable Metasurfaces. ***International Journal of Solids and Structures***. 191-192(2020)566-576