Yuan Yao

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EDUCATION

Jilin University, China 2021.9-now
Bachelor of Engineering, School of Mechanical and Aerospace Engineering Overall score: 90.62/100, rank within top 5%

Tohoku University, Japan 2023.10-2024.8
Exchange Student, Department of Robotics Converted to 93.6/100, no rank and GPA

RESEARCH EXPERIENCES

Exploration of Film Separation Technique by Internal Laser Damage 2023.10-2024.8
Advised by Prof. Shuji Tanaka and Prof. Andrea Vergara MEMS lab, Tohoku University

- A two-dimensional laser **stealth dicing** method for **low-stress separation of silicon-based thin films** is implemented, verifying its feasibility in the **transfer of flexible piezoelectric devices**. The output was presented at MNC2024 and expanded to the a journal paper (expected).
- **Experienced in cleanroom workflows** and equipment operation, including: Mask design/fabrication, Photolithography, DRIE, PVD/CVD, Dicing, Laser systems, and OM/SEM/IR microscopy. More

Ultrasonic Vibration-assisted Scratch Testing Platform: Design and Study 2022.9-2024.4
Advised by Prof. Hu Huang Huang lab, Jilin University

- Design and verify the thread-V groove composite structure to ensure effective vibration transmission; match the system's resonance frequency with the ultrasonic transducer working frequency through Abaqus **modal simulation**. Fills the gap for **instruments that can perform scratch testing under ultrasonic vibration**.
- Undergraduate Training Programs for Innovation, China. **National Excellent Conclusion.** Achieved an authorized patent and a published journal paper. More

ACADEMIC ACHIEVEMENT

- A paper submitted (conference extended): **Yao, Y.**, Vergara, A., Tang, Z. & Tanaka, S. Feasibility study of layer separation using 2D patterned internal laser damage in silicon. **IEEJ Transactions on Electrical and Electronic Engineering.**
- **Oral presentation** on **the 37th International Microprocesses and Nanotechnology Conference (MNC 2024)**, Kyoto: The Japan Society of Applied Physics, Nov. 2024, 15D-2-3. Slide Abstract
- Huang, Y.; Wu, H.; **Yao, Y.**; Zhao, H.; Huang, H. An Ultrasonic Vibration Scratch Tester for Studying the Scratch Characteristics of Materials under Ultrasonic Vibration Contact Status. **Actuators** 2024, 13, 262. https://doi.org/10.3390/act13070262.
- H. Huang, **Y. Yao**, Y. Huang, and H. Wu, "An ultrasonic vibration device for vibration-assisted scratch testing," **Chinese Patent**, Mar. 22, 2024. CN 220649966U.

SKILLS

- **Languages**: Native Mandarin; Fluent English including IELTs: 7.0 and GRE: 320; Basic Japanese
- **Professional Software**: Proficient: Solidworks, AutoCAD; Intermediate: Catia, Ansys, Abaqus, Comsol, Origin
- **Programming Skills**: Python, Matlab, C#, Julia, LaTeX

AWARDS AND HONORS

- **National second prize**- *National University Students' Advanced Drawing Technology and Product Information Modeling Innovation Competition*
  ◇ Advanced Engineering drawing; Proficient in CAD software; Teaching of the competition More *2022.8*
- **Provincial first prize** - *China College Students Engineering Practice and Innovation Competition*
  ◇ Led the design and manufacture of a new energy mini-vehicle More *2023.11*
- **Exchange student scholarship** - *Japan Student Services Organization* *2023.10-2024.8*
- **First-class scholarship; Excellent student** - *Jilin University* *2023.11/ 2022.11*
- **Excellent student leader** - *School of Mechanical and Aerospace Engineering, Jilin University* *2022.11*