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 8/9 Course grades: A/ AA

Research experiences

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

◇Investigation of an innovative film separation technology by applying nanosecond laser inside silicon (2D stealth dicing), then shear force was applied to finish the separation; the shear stress was as low as 20 MPa.
◇Experienced in cleanroom workflows and equipment operation, including: Mask design/fabrication, Photolithography, DRIE, PVD/CVD , Dicing, Laser systems, and Optical/SEM/Infrared microscopy. More

- **Ultrasonic vibration-assisted scratch testing platform: design and study** *2022.9-2024.4*
  Undergraduate research program advised by Prof. Hu Huang *Huang lab, Jilin University*

◇Platform designed and numerical verification: Resonable structure to ensure the transmission of ultrasonic vibration; The resonant frequency of the system is matched with the frequency of the ultrasonic transducer.
◇National Undergraduate Training Program for Innovation and Entrepreneurship(NCSIETP), **National Excellent Conclusion,** securing research funding of 10,000CNY. More

Academic achievement

- A paper under review for the conference extended special issue: **Yao, Y.**, Vergara, A., Tang, Z. & Tanaka, S. Feasibility study of layer separation using 2D patterned internal laser damage in silicon. ***Japanese Journal of Applied Physics*** Manuscript
- **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
- Journal paper published: 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
- Utility Model Patent published: H. Huang, **Y. Yao**, Y. Huang, and H. Wu, "An ultrasonic vibration device for vibration-assisted scratch testing," Chinese Patent CN 220649966U, Mar. 22, 2024. Patent

Skills

- **Languages**: Native Mandarin; Fluent English including IELTs: 7.0 (6.5), CET4: 622, CET6: 559, GRE: 320; Basic Japanese
- **Professional Software**: Proficient:Solidworks, Autocad; Intermediate: Catia; Ansys, Abaqus, Recurdyn; Matlab Simulink, Origin
- **Basic Programming Skills**: Python, Matlab, C#, LaTeX

Awards and Honors

- **National second prize**- *National University Students' Advanced Drawing Technology and Product Information Modeling Innovation Competition*
  Content: Advanced Engineering drawing and proficient in CAD software More *2022.8*
- **Provincial first prize** - *China College Students Engineering Practice and Innovation Competition*
  Content: Designed and fabricated an auto-turning mini-car prototype 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*