GUAN YIZHAO
管 一兆

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EDUCATION

The University of Tokyo   *October 2021 - September 2024 (expected)*
- Doctor degree in Precision Engineering. (In Japanese)

The University of Tokyo   *October 2019 - September 2021*
- Master degree in Precision Engineering. (In Japanese)

Tohoku University   *October 2015 - September 2019*
- Undergraduate degree in Mechanical and Aerospace Engineering (IMAC Program, an international course taught in English).

High School Afflicted to China Fudan University   *September 2012 - August 2015*

RESEARCH EXPERIENCE

(Work with professors and doctors as several international groups from Japan, British, India, Indonesia, Thai, etc.)

Fluid Dynamic (Ohnish Lab) *Fall Semester 2016*

- Simulation of the airflow around the wing under applied laser beam and analyses lift improvement.

Fine Nano- Mechanics (Miura／Suzuki lab)Academic year 2017

- Ab initio simulation for Graphene

Optical super-resolution (Takahashi / Michihata lab)   *Academic year 2019-2024*

- FDTD and RCWA simulation for super-resolution microscopy
- Study of super-resolution optical depth measurement
- Development of ultra-sensitive surface particle detection method with phase-contrast microscopy
- Development of super-resolution Meta-lens

Participate in a research project on JST Basic Research program CREST (Satoru Takahashi Team)

FIRST AUTHOR CONFERENCES IN JAPAN

1. Japan Society of Mechanical Engineers (JSME) Tohoku   *September 2018*
   First Principle Calculation on the Electrical Conductivity of Dumbbell-shape Graphene Nano-Ribbon.
2. Japan Society of Mechanical Engineers Computational Mechanics Division (CMD) *September 2019*
   Effect of Strain on the Gas Adsorption of Graphene: A First Principle Study
3. The Japan Society for Precision Engineering (JSPE)   *September 2020*
   The FDTD Analysis of Near-field Response for Microgroove Structure with Standing Wave Illumination
4. The Japan Society for Precision Engineering (JSPE)   *March 2021*
   The FDTD Analysis of Near-field Response for Microgroove Structure with Standing Wave Illumination (2nd) -The Relationship of Microgroove Depth and Near-field Phase Response
5. Optics & Photonics Japan (OPJ)   *September 2020*
   Optical FDTD Analysis of Surface Microstructure for Coherent Structured Illumination Microscopy
6. The Japan Society for Precision Engineering (JSPE)   *March 2022*
   Near-field Phase Analysis of Periodic Microgroove Structure for Metasurface Design based on FDTD Simulation
7. The Japan Society for Precision Engineering (JSPE)   *March 2022*
   Study on the Detection of Nanoscale Foreign Objects by Autonomous Defect Exploration and Split-Type Multi-Probe (Report 11) - High Sensitivity Detection of Liquid Phase Probes by Spatial Optical Phase Modulation (In Japanese)

FIRST AUTHOR INTERNATIONAL CONFERENCES

1. Manufacturing Science and Engineering Conference (MSEC 2021)   *March 2021*
   The FDTD Analysis of near-field response for microgroove structure with standing-wave illumination for the realization of coherent structured illumination microscopy (Selected and Published in Journal of Manufacturing Science and Engineering)
2. OPTICS & PHOTONICS International Congress (OPIC 2021)   *April 2021*
   The FDTD Analysis for Diffraction Limited Microgroove Structure with standing-wave illumination for the realization of coherent structured illumination microscopy
3. International Measurement Confederation (IMEKO 2021)   *August 2021*
   The FDTD Analysis for Dark Field In-process Depth Measurements of Fine Microgrooves (Selected and Published in Measurement: Sensors)
4. The 11th Global Conference on Materials Science and Engineering (CMSE 2022)   *September 2022*
   Smart optical measurement probe for autonomously detecting nano-defects on bare semiconductor wafer surface: highly sensitive observation system using phase-contrast microscopy with a spatial light modulator (Selected and Published in Journal of Physics: Conference Series)

5. Asian Society for Precision Engineering and Nanotechnology (ASPEN 2022)   *November 2022*
   Optical Depth Measurement for Microgrooves: A Self-interferometry Method based on Near-field Polarization Analysis (<u>Best Paper Award</u>)
6. Leading Edge Manufacturing/Material and Processing (LEM&P)   *June 2023*
   Numerical simulation of self-assembled nanoparticles substrate for plasmonic structured illumination microscopy
7. International Symposium on Measurement Technology and Intelligent Instruments (ISMTII)   *September 2023*
   Super-resolution Imaging of Sub-diffraction-limited Pattern with Superlens based on Deep Learning (<u>Best Paper Award</u>)

TEAM WORKS

Team-based Research   *Fall semester 2016*
- We proposed a line navigation robot and realized this idea using Robolab. I participated in the assembling and programming.

Professional development Consortium for
Computational Materials Scientists (PCoMS) *September 2018*
- In this seminar, the topic "Computer-based DFT (Density functional theory) simulation for corrosion resistance of aluminum" was proposed by our team. I did the final presentation while team members (an assistant professor and a doctoral student) combined their ideas.

PART-TIME JOBS

Convenient store (Ministop Co., Ltd.) staff   *September 2017 - October 2018*
- Be promoted from C level to A level staff in 3 months.

Freshman tutor   *October 2017 - August 2018*
- Support a new international student from Singapore in his study and daily life.

MEKO Education Group   *March 2020 -*
- Application Tutor

Internship

Sony Group   *February 2023*
- R&D department, Tokyo, Optimization of grating coupler using FDTD

Mazda Motor Corporation   *September 2019*
- R&D department, Hiroshima, Learning the jointing technology development of different metals

SKILLS & INTERESTS

- Technical   Microsoft Office, C Language, Python, Matlab, Solid works (Design software), Blender.
- Language   Native Chinese, Fluent in English (GRE 324) and Japanese (JLPT N1 level).
- Interests   Running, Simulation Games, Taichi (Martial Arts), Badminton

Academic Achievements & Honors

- MSEC 2021 selected for publication
- IMEKO 2021 selected for publication
- CMSE 2022 selected for publication
- Best Paper Award for ASPEN 2022
- Best Paper Award for ISMTII 2023

Personal Achievements & Honors

- JSPS DC1 (2022-2024)
- Letter of thanks for attendance of EUSPEN Talent Program 2022
- Outstanding graduation thesis award（修士論文優秀賞）
- Graduation GPA: 2.7/3
- Scholarship from Sumitomo Electric Industries Social Contribution Foundation
- Finish undergraduate graduation courses in the 6th semester (normally 8th semester), and start taking graduate school lectures.
- Undergraduation GPA: 3.34/4   Core courses: Obtain AA (GPA=4) in lectures below:
    Heat Transfer (I,II)，Control Engineering (I,II), Quantum Mechanics, Computer seminar.
- Tohoku University Honor President Fellowship.
- The Monbukagakusho Honors Scholarship (JASSO).
- Membership of The Japan Society of Mechanical Engineers.
- Enrolled in "elite training program" a study tour in Zhangye High school, Gansu, China.
- Participated in voluntary support education in Xiji, Ningxia, China.