

YU-JUI (RAY) FAN (范育睿)

CONTACTS

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EXPERTISE

- Design, fabrication, packaging, and characterization of micro/nano electromechanical systems (M/NEMS), micro/nano/optofluidics, and microanalytical system, sensors, actuators, transducers, and microinstrumentation.
- Organ-On-a-Chip: vessel mimicking microfluidic channel for studying cell mechanics, drug screening, and Thrombolytic Therapy.
- Finite element analysis: Multiphysics coupled simulation. e.g. electrics involved micro/nano fluid behavior. Fluid mechanics in elastic vessel.

EDUCATION

6/2014 **NATIONAL TAIWAN UNIVERSITY** Taipei, Taiwan
Ph.D. in Institute of Applied Mechanics (IAM)

PROFESSIONAL EXPERIENCE

12/2016-7/2025 **TAIPEI MEDICAL UNIVERSITY** Taipei, Taiwan
Assistant Professor to Professor – School of Biomedical Engineering

8/2026 - current **NATIONAL YANG MING CHIAO TUNG UNIVERSITY** Hsinchu, Taiwan
Professor – Mechanical Engineering

SELECTIVE HONORS AWARDS

2023 Ta-You Wu Memorial Award – National Science and Technology Council

2022 Young Investigator research award – Taipei Medical University

2020 Young Investigator research award – Taipei Medical University

2020 Young Investigator paper award – Association of Chemical Sensors in Taiwan

2020 Young Scholar Fellowship – the Columbus Program

2017 RSC best Award (Analyst poster prize), RSC-TIC conference 2017.

2015 Best paper Award in Optofluidics 2015

2014 Ph.D. Dissertation Award, Society of Theoretical and Applied Mechanics, R.O.C.

2014 joint best poster award in Biosensors 2014

2010 Graduate Students Study Abroad Program sponsored by National Science Council

AUTOBIOGRAPHY

I earned my bachelor's degree with first place from the Department of Mechanical Engineering, Tatung University, Taipei, Taiwan in 2005. I received a Master's and a PhD degree from the Institute of Applied Mechanics, National Taiwan University, Taipei, Taiwan, in 2008 and 2014, respectively. I also conducted my research project in Prof. Pei-Yu Chou's lab in the Department of Mechanical Engineering, University of California, Los Angeles, CA, USA, from 2009 to 2013. My PhD dissertation is to develop a microoptics integrated microfluidic device and a parallel microflow cytometry for high-throughput cell analysis (10^8 cell/s). I received a Ph.D. Dissertation Award from the Society of Theoretical and Applied Mechanics, R.O.C. in 2014.

After military service in 2015, and one-year Postdoc training in the Institute of Applied Mechanics, National Taiwan University, I joined the School of Biomedical Engineering, Taipei Medical University as an assistant professor in December 2016. I have been a full professor at the Department of Mechanical Engineering, National Yang Ming Chiao Tung University, since August 2025. My research interests include BioMEMS, manipulation in microsystem, organ-on-a-chip, thermal management. I am currently involved in the projects (1) developing a smart hospital with Taipei Municipal Wanfang Hospital and working on biomarker monitoring at home. (2) developing a stroke-on-a-chip device with National Applied Research Laboratories for replacing/reducing animal models. (3) mitochondrial extraction, purification, and delivery system for cells' mitochondria therapy.