Takumi Endo

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PROFILE

- Collaborate smoothly with international, cross-disciplinary research teams.
- Proficient in CFD and machine learning, and their integration.
- Plan and deliver independent projects with rigor and on-time results.

EDUCATION

Jan. 2026 – present: Ph.D. candidate in Chair of Aerodynamics and Fluid Mechanics TUM School of Engineering and Design – Technical University of Munich at Munich, Germany

Apr. 2025 – Dec. 2025: Ph.D. candidate in Mechanical Engineering – The University of Tokyo at Tokyo, Japan
- JST Support for Pioneering Research Initiated by the Next Generation (SPRING) Program, The University of Tokyo

Apr. 2023 – Mar. 2025: Master of Engineering in Mechanical Engineering – The University of Tokyo at Tokyo, Japan (GPA: 3.84/4)
1. Researched on the wall model for large eddy simulation using generative adversarial networks
   - Keywords: Turbulence, Large eddy simulation, Wall model, Machine learning, Generative adversarial networks (GANs)
   - Supervisor: Prof. Yosuke HASEGAWA at the University of Tokyo
2. Researched on surrogate model for wind assisted devices in large vessels
   - Keywords: Wind-assisted ship propulsion, Rigid wind sails, Rotor sails, Surrogate model, MMG model
   - Supervisor: Project Research Associate Cem GUZELBULUT at the University of Tokyo

Sep. 2023 – Feb. 2024: Exchange program in Aeronautical Engineering – Politecnico di Milano at Milan, Italy
1. Worked on CFD analysis of DRS on a Formula 1 car, optimizing aerodynamic performance
   - Keywords: Turbulence, RANS, Shape optimization,

Apr. 2019 – Mar. 2023: Bachelor of Engineering in Mechanical Engineering – The University of Tokyo at Tokyo, Japan
1. Researched on second harmonic spectroscopy at the evaporation interface in multi-component systems
   - Keywords: Evaporation, Second harmonic generation, Spectroscopy, Adsorption isotherm

INTERNSHIP

Oct. 2022 – Present: CFD Engineer at TotalSim Japan Inc. at Tokyo, Japan
- Analyzed external flow of motorsport cars and race bikes
- Set up cases and meshes in OpenFOAM, post-processed results using ParaView, Excel, and Python/Linux scripts

EXTRACURRICULAR ACTIVITIES

Nov. 2023 - Mar. 2024: Aerodynamics Engineer at Polimi Motorcycle Factory (PMF)
- Belonged to Aerodynamics department in the official team of Politecnico di Milano competing in MotoStudent
- Conducted steady simulations, analyzed results, and developed rotating models of transient simulations

JOURNAL PUBLICATIONS

Jun. 2025: Endo, T. and Guzelbulut, C., “Performance Analysis of Interacting Rigid Wind Sails and Rotor Sails by Kriging Surrogate Model", Journal of ETA Maritime Science, 2025.

CONFERENCE PRESENTATIONS

Dec. 2024: Endo, T., et al., "Application of GAN to Wall-Modeled LES Using Local Flow Information and Its Performance Evaluation", 39th CFD symposium, 2025, Tokyo, Japan, Oral Presentation.

Sep. 2025: Endo, T., et al., " Development of a GANs-Based Wall Model for Large Eddy Simulation Using Local Flow Information", 36th Parallel CFD international conference 2025 (ParCFD36), 2025, Merida, Mexico, Oral presentation (peer reviewed).

Sep. 2025: Endo, T., et al., "Development of GANs-based Wall Model for Large Eddy Simulation of Wall-Bounded Flow", 15th International ERCOFTAC Symposium on Engineering Turbulence Modelling and Measurements (ETMM-15), 2025, Dubrovnik, Croatia, Oral presentation (peer reviewed).

Mar. 2025: Endo, T., et al., "Application of GANs to the Development of Wall Models for LES and Evaluation of Their Predictive Performance", 40th IIS TSFD Symposium, 2025, Tokyo, Japan, Oral Presentation.

Dec. 2024: Endo, T., et al., "Development of Wall Model for Large Eddy Simulation Using Generative Adversarial Networks", 38th CFD symposium, 2024, Tokyo, Japan, Oral Presentation.

AWARDS

Mar. 2025: Outstanding Presentation Award at the 40th IIS TSFD Symposium, Tokyo

Aug. 2023: Continental UTokyo-IIS Global Engineering Fellowship – The University of Tokyo and Continental Japan

SKILLS

- Language: Japanese (native), English (advanced), Italian (Beginner)

- CFD Tools: OpenFOAM — 3 years of hands-on experience (meshing, solver customization, automation)
- Programming & Simulation
  - Python — 2 + years (data processing, automation, visualization)
  - TensorFlow — 2 + years (GAN, CNN and PINN)
  - MATLAB / Simulink — 2 + years (numerical analysis, ship modeling and control optimization)
- Machine Learning: Development of GAN-based wall models