Takumi Endo

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https://takuendo.github.io/

PROFILE

- Collaborates effectively with international and cross-disciplinary research teams.
- Proficient in CFD and machine learning, including their integrated applications.
- Capable of planning and executing independent research projects with rigor and timely delivery.

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 - Program suspended due to transfer to the Technical University of Munich (TUM)
Apr. 2023 – Mar. 2025:	Master of Engineering in Mechanical Engineering – The University of Tokyo at Tokyo, Japan (GPA: 3.84/4) - Developed a GAN-based wall model for LES, integrating machine learning into OpenFOAM CFD workflows - Built surrogate models for wind-assisted ship propulsion systems (rigid sails, rotor sails) using CFD data
Sep. 2023 – Feb. 2024:	Exchange program in Aeronautical Engineering – Politecnico di Milano at Milan, Italy - Conducted CFD analysis of a Formula 1 DRS system to optimize aerodynamic performance
Apr. 2019 – Mar. 2023:	Bachelor of Engineering in Mechanical Engineering – The University of Tokyo at Tokyo, Japan

INTERNSHIP

Oct. 2022 – Present:	CFD Engineer at TotalSim Japan Inc. at Tokyo, Japan - Conducted external aerodynamic analyses of motorsport cars and racing motorcycles - Set up simulation cases and meshes in OpenFOAM - Post-processed results using ParaView, Excel, and Python/Linux scripts - Collaborated with engineers to support aerodynamic design decisions under real project deadlines

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

Dec. 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

Nov. 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).

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), German (beginner)
- CFD Tools:
  - OpenFOAM (3+ years) — meshing, solver customization, case setup, automation
- Machine Learning for CFD:
  - GAN — development of ML-based wall models and implementation in OpenFOAM
  - PINN — reproducing the unsteady flow using PINN
- Programming & Data Processing:
  - Python (3+ years) — data processing, automation, visualization
  - MATLAB / Simulink (2+ years) — numerical analysis, ship modeling, control optimization