

Kei Yamamoto

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EDUCATION

Ph.D. in Fluid Mechanics

Aug.2022 – current

Department of Computational Physiology, Simula Research Laboratory

Oslo, Norway

M.Sc. in Fluid Mechanics (biomechanics/medical mechanics)

Aug. 2020 – Jun. 2022

Department of Mathematics, University of Oslo

Oslo, Norway

- **Course Works** : Computational Fluid Dynamics (graded A)
Viscous flow and Turbulence (graded A)
Finite Element Methods in Computational Mechanics (graded A)
Numerical Methods for Partial Differential Equations (graded B)
High-Performance computing and Numerical Projects (graded B)
Partial Differential Equations (graded B)
- **Master Thesis** : ‘Numerical investigation of turbulent flow in helically coiled pipes’: **graded A**
Supervisor: Mikael Mortensen

B.Eng. in Mechanical Engineering

Apr. 2016 – Mar 2020

Department of Mechanical Engineering, Keio University

Tokyo, Japan

Exchange student

Aug. 2018 – Jul 2019

Department of Mathematics and Natural Sciences, University of Oslo

Oslo, Norway

PROFESSIONAL EXPERIENCE

Project Supervisor

Jun.2022 – Aug.2022

San Diego, U.S.A & Oslo, Norway

- Supervised a project in the summer school, jointly organized by the University of California, San Diego and Simula Research Laboratory. The project was consisted of three students, two from the University of California, Davis, and one from the University of Oxford.

Teaching Assistant

Aug. 2021 – Dec. 2021

Department of Informatics, University of Oslo

Oslo, Norway

‘IN5270 – Numerical methods for partial differential equations’ Principal Lecturer: Xing Cai

Summer Intern

June. 2021 – Aug. 2021

Department of Computational Physiology, Simula Research Laboratory

Oslo, Norway

‘Ordinary differential equation-based modeling of cells in human cartilage’ Supervisor: Molly Maleckar

- Porting and redeveloping legacy code (in MATLAB) for the chondrocyte model to an updated language and formatting (in python)

RESEARCH EXPERIENCE

Master Student

Aug. 2020 – Jun. 2022

Department of Computational Physiology, Simula Research Laboratory

Oslo, Norway

- Blood flow simulations in the internal carotid artery to investigate the cause of cerebral aneurysms Supervisor: Kristian Valen-Sendstad

Simula Summer School in Computational Physiology

Jun. 2021 – Aug. 2021

Department of Computational Physiology, Simula Research Laboratory

Oslo, Norway

- Summer School is jointly hosted by the University of California, San Diego, the University of Oslo, and Simula Research Laboratory.
- The material covered by this summer school focuses on fundamental principles of mathematical modeling in electrophysiology and biomechanics.
- The school includes both targeted research lectures and a practical project component.

Bachelor Thesis

June 2019 – Mar. 2020

Ando Laboratory, Keio University

Tokyo, Japan

‘Study on Mechanisms of Negative Pressure Generation by Non-spherical Collapse of Laser-induced Bubbles in Water’ Graded S (=A in Norwegian grading system) Supervisor: Keita Ando

- developed experimental setups to capture the motion of collapsing bubbles in water with high-speed camera
- measured/analyzed shock wave pressure generated by the collapse of bubbles

PEER-REVIEWED JOURNAL PUBLICATIONS

2021

- "Probing the putative role of KATP channels and biological variability in a mathematical model of chondrocyte electrophysiology" Sophie Fischer-Holzhausen, **Kei Yamamoto**, Maria P. Fjeldstad, Mary M. Maleckar (accepted by *Bioelectricity*)

UNDER REVIEW

2021

- "Experimental study on generation of negative pressure by non-Spherical bubble collapse from single pulse laser focusing in water." **Kei Yamamoto**, Keita Ando (submitted to *Shock Waves*)

TECHNICAL SKILLS

Language

- English : Fluent in both writing and speaking, TOEFL iBT 100/120
- Japanese : Native
- Norwegian : Beginner

Programming Language

- Python : Over 3 years experiences. I have extensively used Python for scientific computing.
- MATLAB : Over 3 years experiences. I used MATLAB as the first programming language at the Keio University.
- C/C++ : Learned about half a year for high performance computing
- LaTeX, HTML, CSS

Tools & Skills

- Git (GitHub), OpenFoam, FEniCS, ImageJ, Solidworks, Paraview, CAD

AWARDS

The Scandinavia-Japan Sasakawa Foundation

2020, 2021

- The foundation promotes research, development, education and training mainly within medicine, the humanities, social and natural sciences and technology.

Keio University Faculty of Science and Technology Study Abroad Scholarship

2019

- Awards for academically talented students to support their study abroad.