Eunkyu Kim

CONTACT INFORMATION

251 Mercer St.
Department of Mathematics
The Courant Institute (NYU)
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RESEARCH INTERESTS

Fluid Mechanics, Aerodynamics, Dynamical Systems, Data Driven Methods, Applied Mathematics

EDUCATION

Courant Institute of Mathematical Sciences (NYU), New York, NY USA

M.S., Mathematics, 2024-2026 (Expected)
GPA: 4.00/4.00
THESIS: (Advisor: Leif Ristroph)

The Cooper Union For The Advancement of Science and Arts, New York, NY USA

B.Eng., Mechanical Engineering (minor: Mathematics), 2018-2024
GPA: 3.83/4.00 (SUMMA CUM LAUDE)
THESIS: Designing passive energy wastewater mixing device via computational fluid dynamics, experimental validations, and data-driven dethods (Advisor: Dirk Martin Luchtenburg)

HONORS, AWARDS, GRANTS

The Cooper Union: Dean's List, Tau Beta Pi, Half Tuition Scholarship, Innovator Merit Scholarship, JMM Travel Grant, Harry W. Reddick Award for Excellence in Mathematics.

ACADEMIC EXPERIENCE

Courant Institute (NYU), New York, New York USA

Graduate Student **August, 2024 - present**
Applied Mathematics Laboratory (Advisor: Dr. Leif Ristroph)
Research Topic: Experimental Aerodynamics, Gliders, Numerical Methods, Applied Mathematics

Teaching Assistant **January, 2025 - present**
Recitation Leader, holding office hours, and grading duties.

- MATH-UY4434 Applied Complex Variables (Recitation Leader)
- MATH-UA325 Analysis (Grader)

The Cooper Union, New York, New York USA

Undergraduate Researcher / Visiting Graduate Researcher **January, 2023 - present**
Dynamics and Controls Lab (Advisor: Dr. Dirk M. Luchtenbrug)
Research Topic: Data Driven Methods, Non-linear Dynamical System Identification and Controls, Computational Fluid Dynamics, Multi-body Dynamics

Undergraduate Researcher **March, 2022 - Dec, 2023**
Mili Lab (Advisor: Dr. Mili Shah)
Research Topic: Numerical Methods, Applied Linear Algebra, Computer Vision, Camera Calibration

Teaching Assistant **August, 2022 - May, 2024**
Tutoring, laboratory preparation, lecture preparation, exam proctor, and grading duties.

- PH291 Physics Laboratory (Teaching Assistant)
- ME424 Space Dynamics (Teaching Assistant)
- MA326 Linear Algebra (Grader)
- MA113 Calculus II, MA223 Vector Calculus, MA240 Ordinary Differential Equations (Tutor)

Korea University, Seoul, Republic of Korea

Undergraduate Research Intern **May, 2023 - July, 2023**
Multiscale Fluid Lab (Advisor: Dr. Hyejeong Kim)
Research Topic: Bio-inspired Microfluidic Chip Design, Microplastic-Microbubble Interaction, Multiphase Flow

Seoul National University, Seoul, Republic of Korea

Undergraduate Research Intern **March, 2022 - August, 2022**
Applied Nano Lab (Advisor: Dr. Max Ko)
Research Topic: 3D Printing, Hydrogel Enhancement, Thermal Interactions, Laser, Liquid metal-based entanglement

Publications

Kim, E., Rhode, L., Shah, M., "Comparative Evaluation and Refinement of Linear Algebra-Based Camera Calibration Algorithms", SIAM SIURO, 2023.

Luchtenburg, D. M., Impelluso T. J., Rykkje, T. R., Chen, J., Kim, E., Leppitsch, C., Meiner, B., Zaretsky, D.,"Gyroscopic Control of Robotic Smart Vehicles Using SO(3)", ASME, 2023.

Paper in preparation

Kim, E., Ristroph, L., "Experimental Exploration of Walkalong Gliders and Numerical Solution".

Luchtenburg, D. M., Kim, E., "Applications of the Role of Spectral Sub-Manifolds for Identifying Non-Hyperbolic High Dimensional Non-Linear Systems".

Conference Presentations

Kim, E., Rhode, L., Shah, M., "Comparative Evaluation and Refinement of Linear Algebra-Based Camera Calibration Algorithms", JMM, 2023.

Cho, C., Shin W., Kim, M., Bang, J., Kim, E., Hong, S., Ko, S., "Laser-induced Entanglement of Liquid Metal and Metallic Nanowire for the Monolithically Variable Stretchable Conductor", Materials Advances, 2022.

Professional Experience

6th Infantry Division, Republic of Korea Army **August, 2020 - March, 2022**
Compulsory military service as per the regulations of the South Korean Law. Honorable discharge as Sergeant specializing in Demilitarized Zone Recon Operations. Served as a Squad Leader for 3 months.

Computer Skills

- Languages: Fortran, Julia, MATLAB, Python.
- Tools: Altair, ANSYS Fluent, AutoCAD, LaTeX, Microsoft Excel, OnShape, Open FOAM, PyTorch, SolidWorks.

Relevant Coursework

- Courant Institute (NYU): Numerical Methods**, Partial Differential Equations**, Methods of Applied Mathematics**, Fluid Dynamics**, Immersed Boundary Methods** (Audit)
- The Cooper Union: Advanced Fluid Mechanics*, Space Dynamics*, Dynamical Systems & Data Driven Control*, Drone Control*, Modern Control*, Robotics, Numerical Analysis*, Computational Fluid Dynamics* (Audit).

∗ - Master level course
∗∗ - PhD level course

Last Updated: June 11 2025