# Eunji Yoo

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## Education

Ph.D. Candidate in Applied Mathematics, University of California, Merced (UC Merced)

- August 2017 – Present (Expected graduation: August 2023)
- Advisors: François Blanchette and Shilpa Khatri
- Thesis topic: Simulations of settling marine aggregates in Stokes flow

M.S. in Applied Mathematics, San Diego State University (SDSU) [August 2017]

B.S. in Mathematics, Hankuk University of Foreign Studies (HUFS), South Korea [Feb 2013]

## Technical Skills

Computational languages: Matlab, C++, Python, Linux-based system, LaTex, Mathematica

Libraries: AMReX, FFM3D

Languages: English, Korean

## Publication

- E. Yoo, S. Khatri, and F. Blanchette, Hydrodynamic forces on randomly formed marine aggregates. *Phys. Rev. Fluids*, 5:044305, Apr 2020
- E. Yoo, Nonlinear Waves in Density Stratified Fluids over Underwater Topography, Master thesis, *Dept. of Mathematics, San Diego State University*

## Awards & Fellowships

National Sciences Foundation Mathematical Sciences Graduate Internship [2021, 2022]

Southern California Edison Fellowship [2021]

UC Merced Applied Math Summer Research Fellowship [2018, 2019]

Valedictorian Award at HUFS [2013]

Asan Foundation Fellowship [2012]

## Research Experiences

National Science Foundation (NSF) Mathematical Sciences Graduate Internship (MSGI) [2022]

- Hosted by Lawrence Berkeley National Laboratory (LBNL)
- Research mentor: Ishan Srivastava
- We studied a second-order rheological model for a complex fluid flow with pressure-dependent viscosity. We implemented the granular rheology within the AMReX framework, using C++.

National Science Foundation (NSF) Mathematical Sciences Graduate Internship (MSGI) [2021]

- Hosted by National Renewable Energy Laboratory (NREL)
- Research mentor: Michael Martin
- We implemented a comprehensive solver package of the Equation of State (EoS) to obtain various properties for a wide temperature range of helium, using Python. We use the library to model one-dimensional compressible flow with heat addition.

## Presentations

The Computational Science (CS) division summer poster session [Sep. 2022]

- Continuum modeling of complex fluids with a second-order rheology in AMReX

The Computational Science (CS) division summer poster session [Aug. 2022]

- Continuum modeling of complex fluids with a second-order rheology

Ocean Sciences Meeting 2022 [Feb. 2022]

- Simulations of settling marine aggregates in a stratified fluid

UC Merced, Energy and Environment seminar [Feb. 2021]

- Practice talk for OSM 2022

74th Annual Meeting of the Division of Fluid Dynamics, American Physical Society [Nov. 2021]

- Simulations of settling marine aggregates in a stratified fluid

UC Merced, Energy and Environment seminar [Oct. 2021]

- Settling marine aggregate in a stratified fluid

7th Annual Rocky Mountain Fluid Mechanics Research Symposium [Aug. 2021]

- One-dimensional flow of cryogenic Helium below 4K

UC Merced, Energy and Environment seminar [Apr. 2021]

- (Quick overview of) Fast multipole method for Stokes equations

UC Merced, Energy and Environment seminar [Dec. 2020]

- Simulations of settling marine aggregates

72nd Annual Meeting of the Division of Fluid Dynamics, American Physical Society [Nov. 2019]

- Settling of randomly formed marine aggregates

UC Merced, Energy and Environment seminar [Mar. 2019]

- Simulations of flow around marine aggregates

The Yosemite Fluid Meeting (FluMe) [Aug. 2018]

- Flow around marine aggregates with boundary integral equations

## Teaching Experiences

Teaching Assistant at UC Merced [Fall 2018 – Present]

- Calculus, Linear Algebra, Ordinary/Partial Differential Equations, Numerical Methods.

Graduate Assistant for Research Experiences for Undergraduates at SDSU [Summer 2017]

- Research topic: Study of Vortex Dynamics with Free Surface in a Shallow Water Regime

Teaching Assistant at SDSU [Fall 2015 – Spring 2017]

- Calculus

## Activities

- University of California, Merced SIAM student chapter, social media coordinator [2022–2023]
- Member of American Physical Society (APS), Society for Industrial and Applied Mathematics (SIAM), and American Geophysical Union (AGU)