M. Jeffrey Mei

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EDUCATION

Massachusetts Institute of Technology, Cambridge, MA — June 2015 - August 2020 (expected)
Woods Hole Oceanographic Institution, Woods Hole, MA
Ph.D., MIT-WHOI Joint Program in Applied Ocean Science & Engineering. GPA: 4.7/5.0
- Dissertation: "Morphological Approaches To Understanding Sea Ice Thickness"

New York University Abu Dhabi, Abu Dhabi, United Arab Emirates — August 2011 - May 2015
B.S. *cum laude*, Physics and Mathematics. GPA: 3.8/4.0
- New York University Honors Scholar, 2015
- Semester study abroad at NYU Berlin/Humboldt-Universität zu Berlin (Germany), Spring 2013
- Full scholarship, 2011-2015

RESEARCH EXPERIENCE

Graduate Research Assistant, MIT/WHOI — September 2015-present
- Applied convolutional neural networks to sea ice imagery to infer ice thickness from topography and interactively visualized the learned filters using OpenCV and PyTorch
- Collected sea ice data using surface topography laser (lidar) scans during 3-month winter fieldwork in Antarctica
- Created an interactive GUI for processing sea ice imagery (segmentation, floe delineation) using OpenCV
- Investigated sea ice thickness statistical distribution using extreme value theory
- Authored peer-reviewed publication in *The Cryosphere*, "Estimating Early-Winter Ice Thickness From Deformed Ice Morphology." (doi:10.5194/tc-13-2915-2019)

Undergraduate Research Assistant, NYU Abu Dhabi — 2013-2015
- Developed a novel method for localizing glacial collapse using signal processing and hyperbolic geometry
- Visualized seismic spectrograms using Python and created a frequency bandpass filter, with automated detection of seismic shock wave onset
- Authored peer-reviewed publication in *The Cryosphere*, "Calving localization at Helheim Glacier using multiple local seismic stations." (doi:10.5194/tc-11-609-2017)

TEACHING AND LEADERSHIP EXPERIENCE

12.720 Elements of Modern Oceanography, MIT — Fall 2018
Teaching assistant
- Explained physical oceanographic concepts to first-year graduate students with no prior physics experience
- Improved scientific rigor of students research projects with one-on-one feedback

Summer Math Review, WHOI — 2017-2018
Organizer and instructor
- Organized courses and assigned instructors for summer math review for incoming graduate students
- Prepared class notes and taught classes in ordinary/partial differential equations, data analysis, numerical methods for solving ODEs

MIT Badminton Club, MIT — 2016-2020
Treasurer 2016-2019, President 2019-2020
- Managed club financials, including equipment ordering and fundraising
- Oversaw player registration, facilities reservations and liased with sponsors for the Boston Open (2nd-largest badminton tournament in the USA)

SKILLS AND INTERESTS

Fluent in English, German, Mandarin Chinese; conversant in Russian
Experienced with Python (NumPy/SciPy/OpenCV/PyTorch/Pandas), SQL, LaTeX, Linux/Unix, bash