M. Jeffrey Mei

77 Massachusetts Avenue, Bldg 54-814, Cambridge MA 02139 ◇ Nationality: New Zealand, Taiwan
(+1) 617-301-0213 ◇ m.jeffrey.mei@gmail.com ◇ http://jeffreymei.github.io

EDUCATION

Massachusetts Institute of Technology, Cambridge, MA — June 2015 - September 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 and snow depth from surface topography and interactively visualized the learned filters (OpenCV, PyTorch and AWS)
- Developed textural segmentation algorithm to distinguish different deformed sea ice surfaces (OpenCV)
- 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) (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 and bandpass-filtered signals to automate 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 for and taught ordinary/partial differential equations, data analysis, numerical methods

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 (native), German (C1), Mandarin Chinese (native); conversant in Russian (A2/B1)
Experienced with Python (NumPy/sklearn/PyTorch/Pandas), SQL, AWS, OpenCV, LaTeX, Linux/Unix, bash