RUI CHEN

Boston, MA ⋄ 917-622-8272 ⋄ ruic@mit.edu ⋄ ruipo.github.io

EDUCATION

Massachusetts Institute of Technology (MIT) — Cambridge, MA
Woods Hole Oceanographic Institution (WHOI) — Woods Hole, MA
Ph.D. Candidate, MIT-WHOI Joint Program — Expected June 2021
Applied Ocean Science and Engineering — GPA: 4.9/5
National Science Foundation Graduate Research Fellowship

Northwestern University — Evanston, IL
B.A. with Honors, *Magna Cum Laude* — June 2016
Majors in Integrated Science, Physics, Earth Science — GPA: 3.88/4
NOAA Ernest F. Hollings Undergraduate Scholarship

EXPERIENCE

Arctic Ocean Underwater Ambient Noise — July 2016 - Present
Graduate Research Assistant, MIT-WHOI — *Cambridge, MA*

- Investigate environmentally-induced changes to Arctic underwater ambient noise using signal processing techniques such as time-frequency analysis, beamforming, and probabilistic transient detection (Matlab, Python)
- Model and correlate underwater acoustic propagation to environmental shifts using raytracing, wavenumber integration, and normal modes (Bellhop, Kraken, OASES)
- Develop a convolutional neural network approach to estimate the range of surface noise sources that exhibit 20% increase in accuracy and more robustness to environmental mismatch compared to conventional matched field method (Tensorflow, Keras, Scikit-Learn)
- Employ image processing and hierarchical clustering to automatically detect and group transient noise features in data spectrograms; allows for easier categorization of transients compared to amplitude-based approaches (OpenCV, Python)

Arctic Ice Cover Cryo-seismic Monitoring — December 2018 - Present
Graduate Research Assistant, MIT-WHOI — *Woods Hole, MA*

- Collaborate with WHOI scientist to monitor Arctic ice cover activity near the coast of northern Alaska with a deployed planar geophone array to better understand ambient noise generation
- Design and implement an event detection and localization algorithm that combines match filtering followed by time-difference-of-arrival analysis; able to locate events within array perimeter with $< 10\%$ error (Matlab, Python)

Cold, Diffuse Interstellar Clouds — September 2014 - June 2016
Undergraduate Research Assistant, Northwestern University — *Evanston, IL*

- Extracted and analyzed star UV spectrum data from telescope databases to determine cloud distance and density using the image reduction and analysis facility program (IRAF) to better understand star formation within these clouds

Tsunami Danger Threshold Modeling — Summer 2015
Research Intern, Pacific Tsunami Warning Center — *Honolulu, HI*

- Formulated a current velocity threshold for tsunami warning issuance by employing a 1-D shallow water model to simulate tsunami events and quantifying the human and economic impacts of the waves (Matlab)

TEACHING & ADVISING

Graduate Peer Career Advisor — MIT Career Advising & Professional Development, September 2019 - Present

- Conducted >40 individual career advising appointments with undergraduate and graduate students to review resumes/cover letters and offer career counseling; 100% of students rated sessions as extremely helpful

Course Facilitator — MIT edX, November 2019 - May 2020

- Prepared and facilitated weekly online lessons with 20 students on machine learning topics following the ICAP framework

Teaching Assistant — MIT Environmental Ocean Acoustics Course, Fall 2018

- Led weekly review sessions and prepared notes to explain course materials and coding projects on underwater acoustics modeling; received an averaged rating of 6.3/7 on teaching quality from students

SKILLS

Computer: Proficient in Matlab, Python, C++, OASES, Bellhop, Kraken. Familiar with HTML, JavaScript, NodeJS, React.
Language: Native fluency in English, Mandarin Chinese.