John Ragland

PhD Student, Electrical and Computer Engineering, University of Washington
phone: (256)-678-2268, email: jhrag (at) uw (dot) edu, website: [John-Ragland.github.io]

Education

Auburn University B.S. in the department of Electrical and Computer Engineering, suma cum laude, 2015-2019
Honors College Scholar

Auburn University M.S. in the department of Electrical and Computer Engineering, suma cum laude 2019-2020
Adviser: Thaddeus Roppel
Thesis: Digital Simulation and Recreation of a Vacuum Tube Guitar Amp[link]
Emphasis: Digital Signal Processing, Real-time Audio Processing, Physical Modeling

University of Washington Ph.D. in the department of Electrical and Computer Engineering, 2020-(2024 expected)
Adviser: Shima Abadi
Thesis: Using coherent ambient sound to probe the ocean
Emphasis: Digital Signal Processing, Acoustics, Machine Learning

Experience

- Graduate Teaching Assistant, May 2019 - May 2020,*Auburn University*
- Graduate Researcher, June 2020 - (present), *The University of Washington*
- Summer Intern, June 2022 - September 2022,*Applied Research in Acoustics*

Journal Publications

(submitted) Schönau, Martha and Hiron, Luna and **Ragland, John** and Raja, Keshav and Skitka, Joseph and Solano, Miguel and Xu, Xiaobiao and Arbic, Brian and Buijsman, Maarten and Chassignet, Eric and Coelho, Emanuel and Helber, Robert and Shriver, Jay and Summers, Jason and Verlinden, Kathryn and Wallcraft, Allan, (2023), An overview to modeling, characterizing, and predicting the effects of internal gravity waves on acoustic propagation at basin to global scales, *Oceanography Magazine*

(in preparation) **Ragland, John** and Abadi, Shima and Sabra, Karim, (2023), Using ocean ambient sound to sense arrival time fluctuations due to temperature, *Journal of the Acoustical Society of America*

Ragland, John and Abadi, Shima, (2022), Exploring surface source contributions to ocean ambient noise interferometry with airgun shots, *The Journal of the Acoustical Society of America Vol. 152*
[link]

Ragland, John and Schwock, Felix and Munson, Matthew and Abadi, Shima, (2022), An overview of ambient sound using Ocean Observatories Initiative hydrophones, *The Journal of the Acoustical Society of America Vol. 151*
[link]

Ragland, John and Abadi, Shima and Sabra, Karim, (2022), Long-term noise interferometry analysis in the northeast Pacific Ocean, *The Journal of the Acoustical Society of America Vol. 151*
[link]

Talks

Invited Talks

Navy Research Laboratory, Ocean Sciences Division, Stennis MS - Mar, 2023

MG&G Group, University of Washington, Seattle WA - May, 2023

Applied Research Laboratory - UW, Seattle WA - Nov, 2022

Conference Presentations

(in preparation) **Ragland, John** and Abadi, Shima, (2023), Using ocean ambient sound to sense arrival time fluctuations due to temperature, 185th Meeting of the Acoustical Society of America, *Sydney, Australia*

(in preparation) **Ragland, John** and Durofchalk, Nicholas and Gemba, Kay and Abadi, Shima, (2023), Detecting the Kauai source beacon with ocean observatories innitiative hydrophones, 185th Meeting of the Acoustical Society of America, *Sydney, Australia*

Ragland, John and Abadi, Shima, (2023), Towards estimating water column properties using ambient noise interferometry in the deep ocean, Underwater Acoustics Conference and Exposition, *Kalamata, Greece* [link]

Douglass, Alexander S. and **Ragland, John** and Abadi, Shima, (2023), Overview of distributed acoustic sensing technology and recently acquired data sets, 184th Meeting of the Acoustical Society of America, *Chicago, IL* [link]

Abadi, Shima and Douglass, Alexander S. and **Ragland, John**, (2023), Comparing distributed acoustic sensing data with hydrophone recordings, 184th Meeting of the Acoustical Society of America, *Chicago, IL* [link]

Ragland, John and Douglass, Alexander S. and Abadi, Shima, (2023), Using distributed acoustic sensing for ocean ambient sound analysis, 184th Meeting of the Acoustical Society of America, *Chicago, IL* [link]

Ragland, John and Abadi, Shima, (2022), Long-term ambient noise interferometry in the NE Pacific deep ocean, Ocean Sciences Meeting, *Online Meeting* [link]

Ragland, John and Abadi, Shima, (2022), Exploring surface source distributions for ocean ambient noise interferometry with airgun shots, 182th Meeting of the Acoustical Society of America, *Denver, CO* [link]

Ragland, John and Abadi, Shima, (2022), Overview of ocean ambient noise interferometry – Theory and simulation, 183th Meeting of the Acoustical Society of America, *Nashville, TN* [link]

Ragland, John and Schwock, Felix and Liu, Zhaoyu and Abadi, Shima, (2022), Overview of ambient noise research and outreach with OOI hydrophones, AGU Fall Meeting, *Chicago, IL* [link]

Schwock, Felix and **Ragland, John** and Abadi, Shima, (2021), OOIPy: A Python toolbox for accessing and analyzing sata from the Ocean Observatories Initiative, 180th Meeting of the Acoustical Society of America, *Seattle, WA* [link]

Alvaro, Alejandro and Schwock, Felix and **Ragland, John** and Abadi, Shima, (2021), Ship detection from passive underwater acoustic recordings using machine learning, 180th Meeting of the Acoustical Society of America, *Seattle, WA* [link]

Ragland, John and Abadi, Shima, (2021), Estimating ocean variables using ambient noise interferometry, 180th Meeting of the Acoustical Society of America, *Seattle, WA* [link]

Ragland, John and Abadi, Shima, (2021), Long-term noise interferometry analysis in the northeast Pacific Ocean, 179th Meeting of the Acoustical Society of America, *Online Meeting* [link]

Ragland, John and Schwock, Felix and Munson, Matthew and Abadi, Shima, (2021), An overview of ambient sound using OOI hydrophone network, 180th Meeting of the Acoustical Society of America, *Seattle, WA* [link]

Awards

- **ASA best student paper award** - second place at the ASA Nashville in underwater acoustics technical committee, December 2022
- **The Daoma and Murray Strasberg Memorial Scholarship** - for Graduate Students in Ocean Acoustics, May 2023

Open Source Code Contributions

- OOIPy - a python package for accessing broadband and low frequency hydrophone data that is part of the Ocean Observatories Innitiative [github] [pypi]
- xrsignal (in development)- a python package that ports functionality from scipy.signal to xarray and is compatible with distributed computing [github]

Cruise Experience

- R/V Rachel Carson, 2022, 2 days - deployed mooring with two hydrophones that was successfully recovered one week later. The goal of this deployment was to acoustically measure methane seeps in the Puget Sound.

Media Coverage

- UW ECE spotlights, *Listening to the ocean to measure the impact of climate change | UW Department of Electrical & Computer Engineering*
- OOI Science Highlights, *An Overview of Ambient Sound Using OOI Hydrophones*