

Shima H. Abadi

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EDUCATION

University of Michigan

Ph.D. Mechanical Engineering, 2008-2013
M.S. Applied Mathematics (dual degree), 2010-2013
M.S. Mechanical Engineering (dual degree), 2008-2010

University of Tehran

B.S. Mechanical Engineering, 2003-2008

PROFESSIONAL EXPERIENCE

2015-Present

Assistant Professor University of Washington-Bothell, Mechanical Engineering
Adjunct Associate Research Scientist Columbia University, Lamont–Doherty Earth Observatory

2013-2015 (dual appointment)

Postdoctoral Research Scientist Columbia University, Lamont–Doherty Earth Observatory
Visiting Scientist University of Washington, School of Oceanography

2012 (spring-summer)

Visiting Graduate Student University of California-San Diego, Scripps Institution of Oceanography,

RESEARCH INTERESTS

Underwater Acoustics, Array Signal Processing, Marine Mammal Bioacoustics, Acoustic Imaging, Marine Engineering

JOURNAL ARTICLES

- In prep. [1] **Abadi, S. H.**, Haworth, K., Dowling, D. R., “Frequency-sum beamforming in a multipath environment”, Journal of the Acoustical Society of America, in prep.
[2] **Abadi, S. H.**, Tolstoy, M., Wilcock, W. S. D., “Ranging baleen whale calls using towed hydrophone arrays during seismic reflection surveys and studying effectiveness of a mitigation process”, submitted.
- 2015 [3] **Abadi, S. H.**, Wilcock, W. S. D., Tolstoy, M., Crone, T. J., Carbotte, S. M., “Sound source localization technique using a seismic streamer and its extension for whale localization during seismic surveys”, Journal of the Acoustical Society of America, Vol. 138, Issue 6.
- 2014 [4] **Abadi, S. H.**, Thode, A., Blackwell, S., Dowling, D. R., “Ranging bowhead whale calls in a shallow-water dispersive waveguide”, Journal of the Acoustical Society of America, Vol. 136, Issue 1.
- 2013 [5] **Abadi, S. H.**, Van Overloop, M. J., Dowling, D. R., “Frequency-sum beamforming in an inhomogeneous environment”, Proceedings of Meetings on Acoustics, Vol. 19, Issue 1.
- 2012 [6] **Abadi, S. H.**, Song, H. C., Dowling, D. R., “Broadband sparse-array blind deconvolution using frequency-difference beamforming”, Journal of the Acoustical Society of America, Vol. 132, Issue 5.
[7] **Abadi, S. H.**, Rouseff, D., Dowling, D. R., “Blind deconvolution for robust signal estimation and approximate source ranging”, Journal of the Acoustical Society of America, Vol.131, Issue 4.

CONFERENCES/ MEETINGS/ SYMPOSIUMS

- 2016 [1] Dowling, Worthmann, Abadi, “Out-of-band beamforming and matched field processing”, Journal of the Acoustical Society of America, Vol. 139, Issue 4.

- 2015 [2] Abadi, Leckta, Mercado, Haworth, Dowling, "Frequency-sum beamforming in a random scattering environment", Journal of the Acoustical Society of America, Vol. 138, Issue 3.
- [3] Abadi, Tolstoy, Wilcock, "Baleen whale localization using a dual-line towed hydrophone array during seismic reflection surveys", Journal of the Acoustical Society of America, Vol. 138, Issue 3.
- 2014 [4] Abadi, Tolstoy, Wilcock, Crone, Carbotte, "Baleen whale localization using hydrophone streamers during seismic reflection surveys", Journal of the Acoustical Society of America, Vol. 136, Issue 4 (**Invited Speaker**).
- [5] Abadi, Crone, Tolstoy, Wilcock, Carbotte, "Estimating the range of Baleen whale calls recorded by hydrophone streamers during seismic surveys", Journal of the Acoustical Society of America, Vol. 135, Issue 4.
- [6] "Blind Deconvolution in Underwater Multipath Environments and Extensions to Whale Localization", Poster Presentation, Purdue University, Mechanical Engineering, West Lafayette, IN, March 2014.
- 2013 [7] Abadi, Thode, Dowling, "Comparison of remote ranging techniques for bowhead whale calls in a dispersive underwater sound channel", Journal of the Acoustical Society of America, Vol. 134, Issue 5 (**Best Student Paper Awards Winner**).
- [8] Abadi, Van Overloop, Dowling, "Frequency-Sum Beamforming in an Inhomogeneous Environment", Proceedings of Meetings on Acoustics, Vol. 19, Issue 1.
- [9] "Blind Deconvolution in Multipath Environments and Extensions to Remote Source Localization", Physics Graduate Student Symposium, University of Michigan, June 2013.
- 2012 [10] Abadi, Song, Dowling, "Frequency-Difference Beamforming with Sparse Arrays", Journal of the Acoustical Society of America, Vol. 132, Issue 3.
- [11] Abadi, Song, Dowling, "Broadband Sparse-Array Blind Deconvolution Using Unconventional Beamforming", Journal of the Acoustical Society of America, Vol. 132, Issue 3.
- [12] "Frequency-Difference Beamforming with Sparse Arrays", University of Michigan Engineering Graduate Symposium, Ann Arbor, MI, Nov. 2012.
- 2011 [13] Abadi, Haapaniemi, Femminineo, Williamson, Dowling, "Near-field blind deconvolution in a reverberant environment", Journal of the Acoustical Society of America, Vol. 130, Issue 4.
- [14] Abadi, Rouseff, Dowling, "Using the impulse response from blind deconvolution for elementary source localization", Journal of the Acoustical Society of America, Vol. 129, Issue 4.
- 2010 [15] "Blind Deconvolution of Remote- Source Signals from Ocean Acoustic Array Recordings", 159th Acoustical Society of America meeting, April 2010, Baltimore, MD, Vol. 127, Issue 3.
- [16] "Blind deconvolution of remote-source signals by Ray-based ATR", 1st Annual University of Michigan SIAM Student Conference, Ann Arbor, MI, Nov. 2010.
- [17] "Artificial Time Reversal of remote-source signals from acoustic array recordings in multipath environments", Poster Presentation, University of Michigan Engineering Graduate Symposium, Ann Arbor, MI, Nov. 2010.
- 2009 [18] Abadi, Dowling, "Blind deconvolution of remote-source signals from acoustic array recordings in multipath environments", Journal of the Acoustical Society of America, Vol. 126, Issue 4 (**Best Student Paper Awards Winner**).
- [19] "Blind deconvolution of remote-source signals from acoustic array recordings in multipath environments", University of Michigan Engineering Graduate Symposium, Ann Arbor, MI, Nov. 2009.

HONORS AND AWARDS

Fellowships and Scholarships

- [1] Rackham International Student Fellowship, University of Michigan, 2011, \$10,000 (Presented annually to outstanding international pre-candidate PhD students).
- [2] IEEE (Oceanic Engineering Society) Student Scholarship, 2009, \$2,000.
- [3] University of Michigan Fellowship, 2008-09, \$25,000 stipend plus 1 year tuition and benefits.
- [4] Selected to represent Mechanical Engineering Department in the College of Engineering Marian Sarah Parker Award competition, University of Michigan (Presented annually to an outstanding woman graduate student).

Presentation Awards

- [5] Best Student Paper Award in Animal Bioacoustics at 166th Acoustical Society of America meeting, Dec. 2013

[6] Best Student Paper Award in Underwater Acoustics at 158th Acoustical Society of America meeting, Oct. 2009

Career Development Workshop Acceptance and Travel Grant

- [7] Selected to participate “MLSOC Early Career Workshop”, American Geophysical Union meeting, Dec. 2014.
- [8] Selected to participate “Preparing for an Academic Career in the Geosciences by NSF”, Pittsburgh, July 2014.
- [9] Selected to participate “Acoustical Society of America School 2014”, Providence, RI, May 2014.
- [10] Selected to participate “Purdue University Prospective Faculty Workshop”, West Lafayette, IN, March 2014.
- [11] Selected to participate “Future Faculty Workshop (NextProf)”, University of Michigan, Ann Arbor, Sept. 2013.

Others

- [12] Semi-finalist in the Mathematical Olympiad, Iran, 2001.

INVITED TALKS

- [1] Sustainable Ocean Development Symposium, New York, Sept. 2015.
- [2] University of Maine, Mechanical Engineering Department, March 2015.
- [3] Marcus Langseth Oversight Committee (MLSOC) meeting, San Francisco, CA, Dec. 2014.
- [4] Acoustical Society of America meeting, Animal Bioacoustics session, Indianapolis, IN, Oct. 2014.
- [5] Audio and Acoustics Research Group, Microsoft Research, Sept. 2014.
- [6] University of California-Berkeley, Mechanical Engineering Department, Dec. 2013.
- [7] Lamont–Doherty Earth Observatory, Columbia University, Sept. 2013.
- [8] Applied Physics Laboratory, University of Washington, June 2013.
- [9] Physics Graduate Student Symposium, University of Michigan, June 2013.
- [10] University of Hartford, Mechanical Engineering Department, March 2013.
- [11] Qualcomm Incorporated, Audio R&D Group, San Diego, Jan. 2013.

PROFESSIONAL ACTIVITIES

Academic Services

- Reviewer, Journal of the Acoustical Society of America (JASA), 2014-present.
- Reviewer, MDPI, 2016-present.
- Reviewer, Elsevier- Signal Processing, 2016-present.
- Session organizer/chair, Acoustics and Vibrations, Engineering Graduate Symposium, University of Michigan, 2010.
- International Graduate Student mentor, International Connect Program, University of Michigan, 2008- 2013.

Memberships

- Acoustical Society of America (ASA), 2008-Present.
- IEEE, 2008- Present.
- Society of Women Engineering, 2008- Present.
- American Society for Engineering Education (ASEE), 2015-Present.
- Society for Industrial and Applied Mathematics (SIAM), 2009-2013.