

ZACHARY CHANCE

PERSONAL INFORMATION

email zachary.chance@ll.mit.edu
phone (W) (781) 981 1993 · (M) (317) 490 3852

WORK EXPERIENCE

*MIT Lincoln
Laboratory*

2012–Present Technical Staff, MIT LINCOLN LABORATORY

- Led multiple engineering teams developing algorithms for radar signal processing, multisensor-multitarget tracking, mission planning, and target classification
- Transitioned several solutions to government/contractor teams and fostered successful implementation into fielded systems
- Composed and delivered presentations and reports regularly to give progress updates, summarize work, and exhibit results
- Presented routinely to sponsors and management at all different technical levels, i.e., low-level to executive-level program managers

Reference: Paula DONOVAN · (781) 981 2126 · pjdonovan@ll.mit.edu
Reference: Sung-Hyun SON · (781) 981 7307 · sson@ll.mit.edu

Purdue University

2011–2012 Research Assistant, PURDUE UNIVERSITY — West Lafayette

- Investigated the incorporation of noisy feedback information in physical-layer communications and proved its tangible utility
- Composed multiple technical articles in the area of feedback communications
- Collaborated with several other research assistants on theoretical development, testing, and technical documentation
- Studied the area of radar waveform design for imaging purposes and composed two conference papers on the subject

Reference: David LOVE · (765) 981 0779 · djlove@purdue.edu

*MIT Lincoln
Laboratory*

Fall 2011 Student Intern, MIT LINCOLN LABORATORY

- Completed two studies on the optimal use of radar resources for the purposes of searching/tracking and the application of compressive sensing techniques to radar imaging
- Wrote technical articles for each corresponding project
- Constructed and presented final reports on the work

Reference: Sung-Hyun SON · (781) 981 0779 · sson@ll.mit.edu

*Naval Research
Laboratory*

Spring 2011 Student Intern, NAVAL RESEARCH LABORATORY — Washington, D.C.

- Formulated the framework for the optimization of radar waveforms with the goal of imaging
- Built appropriate simulation environment to demonstrate the benefits of waveform optimization
- Composed a technical article and presented final report on the subject

Reference: Raghu G. RAJ (202) 767 3662 · raghu.raj@nrl.navy.mil

EDUCATION

*Doctor of
Philosophy*

2007–2012 Purdue University, West Lafayette

GPA: 3.91 · School of Electrical and Computer Engineering
Area of Concentration: *Communications and Signal Processing*
Thesis: *Harnessing the Benefits of Noisy Feedback*
Advisor: Prof. David J. LOVE

2003-2007 Purdue University, West Lafayette
 Bachelor of Science GPA: 3.92 · School of Electrical and Computer Engineering

PUBLICATIONS

- MSS Tri-Service Radar Symposium* Nov 2021 Differentiable point scattering models for efficient radar target characterization
 Reference: *Proceedings of MSS Tri-Service Radar Symposium*, November 2021
 Authors: Zachary CHANCE, Adam KERN, Arianna BURCH, Justin GOODWIN
- Signal Processing, Sensor Fusion, and Target Recognition* Aug 2018 Error statistics of bias-naïve filtering in the presence of bias
 Reference: *Proceedings of Signal Processing, Sensor Fusion, and Target Recognition*, April 2018
 Authors: Zachary CHANCE, Stephen RELYEA, Evan ANDERSON
- MITLL Technical Report* Dec 2017 Consistent state estimation for very long-range radars
 Reference: *MIT Lincoln Laboratory Technical Report TR-1184*, December 2017
 Authors: Jason COOKSON, Zachary CHANCE, Leonardo URBANO
- IEEE Transactions on Communications* Aug 2015 Concatenated coding using linear schemes for Gaussian broadcast channels with noisy channel output feedback
 Reference: *IEEE Transactions on Communications*, vol. 63, no. 11, pgs. 4576-4590, November 2015
 Authors: Ziad AHMAD, Zachary CHANCE, David J. LOVE, Chih-Chun WANG
- MITLL Project Report* Feb 2014 On the blind fusion of Bayesian classification information
 Reference: *MIT Lincoln Laboratory Project Report MD-40*, pgs. 1-33, December 2013
 Authors: Zachary CHANCE, Lori LAYNE, Sung-Hyun SON
- IEEE Transactions on Communications* Dec 2013 Noncoherent trellis coded quantization: A practical limited feedback technique for massive MIMO systems
 Reference: *IEEE Transactions on Communications*, vol. 61, no. 12, pgs. 5016-5029, December 2013
 Authors: Junil CHOI, Zachary CHANCE, David J. LOVE, Upamanyu MADHOW
- ITA* Feb 2013 Noncoherent trellis-coded quantization for massive MIMO limited feedback beamforming
 Reference: *Proceedings of Information Theory and Applications Workshop*, pgs. 1-6, February 2013
 Authors: Junil CHOI, Zachary CHANCE, David J. LOVE, Upamanyu MADHOW

- IEEE Transactions on Signal Processing* Aug 2012 Using channel output feedback to increase throughput in hybrid-ARQ
Reference: *IEEE Transactions on Signal Processing*, vol. 60, no. 12, pgs. 6465-6480, August 2012
Authors: Mayur AGRAWAL, Zachary CHANCE, David J. LOVE, Venkataramanan BALAKRISHNAN
- ACSSC Nov 2011 A sparse Bayesian approach to multistatic radar imaging
Reference: *Proceedings of Asilomar Conference on Signals, Systems, and Computers*, pgs. 2107-2110, November 2011
Authors: Raghu G. RAJ, Zachary CHANCE, David J. LOVE
- IEEE Transactions on Information Theory* Oct 2011 Concatenated coding for the AWGN Channel with noisy feedback
Reference: *IEEE Transactions on Information Theory*, vol. 57, no. 10, pgs. 6633-6649, October 2011
Authors: Zachary CHANCE, David J. LOVE
- IEEE Radar Conference* May 2011 Information-theoretic structure of multistatic radar imaging
Reference: *Proceedings of IEEE Radar Conference*, pgs. 853-858, May 2011
Authors: Zachary CHANCE, Raghu G. RAJ, David J. LOVE
- ICASSP Mar 2010 A noisy feedback encoding scheme for the Gaussian channel
Reference: *Proceedings of IEEE International Conference on Acoustics, Speech, and Signal Processing*, pgs. 3482-3485, March 2010
Authors: Zachary CHANCE, David J. LOVE

OTHER INFORMATION

- Academic Awards*
- 2010, 2011, 2012 · Frederic R. Muller Scholarship
 - 2007 · Ross Fellowship
 - 2004 · Schlumberger Scholarship
 - 2004 · Tellkamp-Bostater-Lawrence-Power Scholarship
 - 2003 · Mary Bryan Scholarship

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