

ZACHARY CHANCE

PERSONAL INFORMATION

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WORK EXPERIENCE

MIT Lincoln Laboratory 2012–Present Technical Staff, MIT LINCOLN LABORATORY

- Led multiple working groups specializing in the development of algorithms for multisensor-multitarget tracking, mission planning, and target discrimination
- Oversaw several projects through fruition at the applied research level
- Developed and matured algorithms in the areas of radar waveform design, tracking, statistical inference, and mission planning
- Composed and delivered many presentations reporting the progress and concepts of ongoing work

Reference: Sung-Hyun SON · (781) 981 0779 · 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

Bachelor of Science 2003–2007 Purdue University, West Lafayette

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-naive 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

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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