# Matthew R. O'Shaughnessy

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**RESEARCH INTERESTS**

Model-based inference, causal inference, compressed sensing, machine learning

**EDUCATION**

**Ph.D. Electrical & Computer Engineering** August 2016 — Present
Georgia Institute of Technology, Atlanta, GA
Supported by NDSEG Fellowship, 2017–2021
*Co-Advisors*: Prof. Mark Davenport, Prof. Christopher Rozell

**M.S. Mathematics** Exp. December 2019
Georgia Institute of Technology, Atlanta, GA

**B.S. Electrical Engineering** May 2016
Georgia Institute of Technology, Atlanta, GA
*Designations*: Research Option, Co-op Option, Highest Honors

**WORK EXPERIENCE**

**MIT Lincoln Laboratory** Summer 2016
Open and Embedded Systems Group (102)

**Georgia Tech Research Institute** Summer 2014, Spring 2015, Fall 2015
Electro-Optical Systems Lab

**Boeing Company** Summer 2015
DSP Algorithms Group, Boeing Satellite Systems

**TEACHING EXPERIENCE**

**Senior Undergraduate Teaching Assistant** January 2015 — May 2016
Georgia Tech CS 1371—Computing for Engineers

**Undergraduate Teaching Assistant** August 2013 — December 2014
Georgia Tech CS 1371—Computing for Engineers

**JOURNAL PUBLICATIONS**

M. O'Shaughnessy, M. Davenport, and C. Rozell, "Sparse Bayesian learning with dynamic filtering for inference of time-varying sparse signals," *Submitted.*

**CONFERENCE PUBLICATIONS**

M. O'Shaughnessy, M. Davenport, and C. Rozell, "Robust Incorporation of Signal Predictions into the Sparse Bayesian Learning Framework," In *Proc. Workshop on Signal Processing with Adaptive Sparse Structured Representations (SPARS)*, Toulouse, France, July 2019.

M. O'Shaughnessy and M. Davenport, "Localizing Users and Items from Paired Comparisons," In *Proc. IEEE Int. Workshop on Machine Learning for Signal Processing (MLSP)*, Vietri sul Mare, Salerno, Italy, September 2016.

R. Ortman, D. Carr, R. James, D. Long, M. O'Shaughnessy, C. Valenta, and G. Tuell, "Real-time, Mixed-mode Computing Architecture for Waveform-resolved Lidar Systems with Total Propagated Uncertainty," in *Proc. SPIE Defense and Commercial Sensing*, Baltimore, Maryland, April 2016.

**OTHER PUBLICATIONS**

M. O'Shaughnessy, "Localizing Embeddings for Recommendation Systems using Binary Paired Comparisons," *Undergraduate Thesis*, Georgia Institute of Technology, May 2016.

G. Tuell, D. Carr, N. Guida, M. O'Shaughnessy, "Strategies for Mitigating Sea Surface Effects in the Workflow of Deployed Topo-Bathy Lidar Systems," *Technical Report to NOAA*, September 2015.

G. Tuell, D. Carr, N. Guida, M. O'Shaughnessy, "On the Relationship between Resolution of Sea Surface DEMs and Accuracy of Refracted Angle based on Analysis of Empirical Data," *Technical Report to NOAA*, July 2015.

G. Tuell, D. Carr, N. Guida, M. O'Shaughnessy, "Procedures and Algorithms for Raytracing Lidar Measurements Through an Irregular Sea Surface," *Technical Report to NOAA*, May 2015.

**AWARDS**

National Defense Science & Engineering Graduate (NDSEG) Fellowship, 2017—2021
Georgia Tech President's Undergraduate Research Award, 2015
3rd Place, Opportunity Research Scholars Poster Contest, 2014
2nd Place, Opportunity Research Scholars Poster Contest, 2013
Kelley Family Music Scholarship, 2013
National Merit Scholarship, 2012—2016
Zell Miller Scholarship, 2012—2016
Georgia Tech Dean's List; Faculty Honors, 2012—2016

**SERVICE**

**Reviewer**, IEEE Transactions on Signal Processing
**Reviewer**, Signal Processing with Adaptive Sparse Structured Representations (SPARS) Workshop
**Reviewer**, Georgia Tech President's Undergraduate Research Award
**Organizer**, Children of the Norm Group Meeting
**Website Developer**, Georgia Tech Center for Signal & Information Processing
**Member**, Center for Signal & Information Processing Student Activities Committee
**ECE Section Editor**, The Tower Undergraduate Research Journal, 2015–2016
**Treasurer**, Society for Photonics & Optics, Georgia Tech Student Chapter, 2015