

## Ethan R. Elenberg

CONTACT INFORMATION	<div> <div>The University of Texas</div> <div>Department of Electrical and Computer Engineering</div> <div>1616 Guadapule Street</div> <div>Room 7.511 B-9</div> <div>Austin, TX 78701 USA</div> </div> <div> <div>3200 Tom Green Street, Apt A</div> <div>Austin, TX 78705 USA</div> <div>201-892-4615</div> <div>elenberg@utexas.edu</div> <div>http://eelenberg.github.io</div> </div>
RESEARCH INTERESTS	Graph Algorithms, Machine Learning, Image Processing, Index Coding, Distributed Storage
EDUCATION	<p><b>The University of Texas</b>, Austin, TX</p> <p>Ph.D., Electrical and Computer Engineering</p> <p>M.S., Electrical and Computer Engineering, May 2014 <span style="float: right;">GPA: 3.9/4.0</span></p> <ul style="list-style-type: none"> <li>– Research Supervisors: Sriram Vishwanath and Alexandros G. Dimakis</li> <li>– Academic Track: Communications, Networks, and Systems (CommNetS)</li> </ul> <p><b>The Cooper Union for the Advancement of Science and Art</b>, New York, NY</p> <p>B.E., Electrical Engineering, May 2012 <span style="float: right;">GPA: 4.0/4.0</span></p> <ul style="list-style-type: none"> <li>– Full Tuition Scholarship, 2008-2012</li> <li>– <i>Summa Cum Laude</i></li> <li>– Signal Processing &amp; Communications Track</li> <li>– Minor in Mathematics</li> </ul>
ACADEMIC WORK	<ul style="list-style-type: none"> <li>◇ Triangle Sparsifier Bounds via Stein's Method <span style="float: right;">Fall 2015</span></li> <li>◇ A Distributed Framework for Estimating <math>k</math>-profiles of Large Graphs <span style="float: right;">2014-2015</span></li> <li>◇ Video Saliency: Algorithms and Architectures <span style="float: right;">Spring 2014</span></li> <li>◇ Locality Sensitive Hashing Families for Large-Scale Image Compression <span style="float: right;">2013-2014</span></li> <li>◇ Multihop Interference Alignment <span style="float: right;">Spring 2013</span></li> <li>◇ Dimensionality Reduction with Expander Graphs <span style="float: right;">Fall 2012</span></li> <li>◇ iSCISM: interference Sensing and Coexistence in the ISM band <span style="float: right;">2011-2012</span> <ul style="list-style-type: none"> <li>– <i>First Place</i> - IEEE Region 1 Student Paper Competition</li> <li>– Sponsored by <i>ITT Exelis</i></li> </ul> </li> <li>◇ Rateless LT Code Simulation for Visible Light Communication Channels <span style="float: right;">Spring 2012</span></li> <li>◇ Performance Evaluation of WiMAX in Urban Fading Channels <span style="float: right;">Spring 2012</span></li> <li>◇ MATLAB Implementation of MPEG-1 Audio Layer 1 Compression <span style="float: right;">Fall 2010</span></li> <li>◇ Development of a Vinyl Playback Simulator <span style="float: right;">2010</span></li> <li>◇ Construction of a Morse Code Decoder <span style="float: right;">Spring 2009</span></li> </ul>
TECHNICAL SKILLS	<ul style="list-style-type: none"> <li>◇ <b>Programs:</b> Cygwin, Git, GNU Radio, GraphLab PowerGraph, MATLAB, Mercurial, MPLAB, Microsoft Office, Perforce, S-PLUS, Spark, SPICE, Spyder, TinyOS, Visual C#, Xcode, Xilinx ISE, Unix Shell</li> <li>◇ <b>Languages:</b> C, C++, CUDA C, Motorola DSP 563xx assembly, HTML, <math>\LaTeX</math>, NumbaPro, Objective C, PIC assembly, Python, R, Scala, VHDL</li> <li>◇ <b>Algorithms:</b> Adaptive filtering, backprojection imaging, correlation clustering, CoSaMP, graph-based visual saliency, greedy forward regression, image interpolation, <math>k</math>-means clustering, locality sensitive hashing, Luby transform coding, nonlinear Kalman filtering, 802.11 Physical Layer, sparse PCA, stochastic gradient descent, support vector machines, triangle counting, WiMAX Physical Layer, zig-zag and replacement product</li> <li>◇ <b>Laboratory:</b> Digital multimeter, oscilloscope, vector network analyzer, wideband communication tester</li> </ul>
PUBLICATIONS	[1] <b>E.R. Elenberg</b> , K. Shanmugam, M. Borokhovich, and A.G. Dimakis. "Distributed Estimation of Graph 4-profiles", in <i>Proc. World Wide Web Conference</i> , 2016 (to appear).

	<p>[2] <b>E.R. Elenberg</b>, K. Shanmugam, M. Borokhovich, and A.G. Dimakis. "Beyond Triangles: A Distributed Framework for Estimating 3-profiles of Large Graphs", in <i>Proc. ACM KDD</i>, August 2015.</p> <p>[3] J.I. Tamir, <b>E.R. Elenberg</b>, A. Banerjee, and S. Vishwanath. "Wireless Index Coding Through Rank Minimization", in <i>Proc. IEEE ICC</i>, Sydney, Australia, June 2014.</p> <p>[4] J.L. Baylon, <b>E.R. Elenberg</b>, and S.G. Massengill. "iSCISM: interference Sensing and Coexistence in the ISM Band", <i>High Frequency Electronics</i>, vol. 11 no. 4 pp. 30-46, Apr. 2012.</p>
PRESENTATIONS	[5] J.L. Baylon, <b>E.R. Elenberg</b> , and S.G. Massengill. "iSCISM: interference Sensing and Coexistence in the ISM Band," <i>2012 NEWSDR Workshop</i> , Boston, MA. Poster.
GRADUATE COURSEWORK	Adaptive Filters, Advanced Probability, Classical Coding Theory, Digital Video, Introduction to Compressive Sensing, Introduction to System Theory, Large-Scale Learning, Machine Learning for Large-Scale Data, Optoelectronic Devices, Postmodern Coding Theory, Probability & Random Processes I, Randomized Algorithms, Wavelets & Multiresolution Imaging, Wireless Communications, Wireless System Design
WORK EXPERIENCE	<p><b>Graduate Research Assistant, The University of Texas</b> <i>August 2013 - Present</i></p> <ul style="list-style-type: none"> <li>◊ Member of Wireless Networking &amp; Communications Group, LINC group.</li> <li>◊ Designing distributed approximation algorithms for graph analytics.</li> <li>◊ Developing tools to analyze and visualize brain connectivity using task-based fMRI.</li> </ul> <p><b>Summer Research Intern, MIT Lincoln Laboratory</b> <i>May 2014 - August 2014</i></p> <ul style="list-style-type: none"> <li>◊ Formulated and developed novel entropy-based autofocus algorithms for nearfield SAR.</li> <li>◊ Evaluated performance on simulated, emulated, and measured SAR data.</li> </ul> <p><b>Wireless Intern, Apple</b> <i>May 2013 - August 2013</i></p> <ul style="list-style-type: none"> <li>◊ Developed an EVM analysis tool for cellular QPSK signals.</li> <li>◊ Provided factory support during an iPhone build.</li> </ul> <p><b>Summer Research Intern, MIT Lincoln Laboratory</b> <i>June 2012 - August 2012</i></p> <ul style="list-style-type: none"> <li>◊ Implemented extended and unscented Kalman filters in MATLAB for passive target tracking applications.</li> <li>◊ Developed and tested a proof-of-concept passive RF direction finding circuit.</li> </ul> <p><b>S*PROCUM<sup>2</sup> Research Fellow, The Cooper Union</b> <i>August 2011 - May 2012</i></p> <ul style="list-style-type: none"> <li>◊ Assisted with Cognitive Communications Gateway Engine software development.</li> <li>◊ Implemented Voice over IP transcoding for software defined radio applications.</li> </ul> <p><b>Student Engineer, Southwest Research Institute</b> <i>May 2011 - August 2011</i></p> <ul style="list-style-type: none"> <li>◊ Developed image processing software in C for a 4-slap fingerprint reader.</li> <li>◊ Assisted in mapping high-level algorithms to an embedded FPGA implementation.</li> <li>◊ Implemented adaptive filtering, AR inverse model, and NPR filter bank algorithms in MATLAB for audio processing.</li> </ul> <p><b>Audio/Visual Technician, The Cooper Union</b> <i>September 2008 - May 2011</i></p> <ul style="list-style-type: none"> <li>◊ Operated sound for Great Hall events and audio/visual equipment for classes.</li> <li>◊ Supervised movement of equipment to the New Academic Building.</li> </ul> <p><b>Quantitative Research Intern, The Millburn Corporation</b> <i>May 2010 - January 2011</i></p> <ul style="list-style-type: none"> <li>◊ Developed financial models and parallel computing clusters in both R and S-PLUS.</li> </ul> <p><b>Math Tutor, The Cooper Union</b> <i>October 2009 - February 2010</i></p> <ul style="list-style-type: none"> <li>◊ Assisted individual students with Intro to Linear Algebra concepts and homework.</li> </ul>
SECURITY CLEARANCE	Last active August 2014, information available upon request.

HONORS AND AWARDS	The University of Texas	
	– Cockrell School Fellowship	2012-Present
	– Microelectronics & Computer Development Fellowship	2012-2013
	The Cooper Union	
	– Dean's List	Fall 2008 - Spring 2012
	– Harold S. Goldberg Leadership Prize	May 2012
	– Irwin L. Lynn Memorial Prize in Mathematics	May 2012
	– Radio Club of America Scholarship	March 2012
	– Abdul Azimi Memorial Scholarship	November 2011
	– C.V. Starr Scholarship	October 2011
MEMBERSHIPS	– Jesse Sherman Book Award in Electrical Engineering	September 2011
	– Barry Federman SAME Scholarship	October 2010
	◇ Student Member, IEEE	2011-Present
	◇ Reviewer, ISIT	2016
	◇ Reviewer, NIPS	2015
	◇ Reviewer, DySPAN	2014
	◇ Reviewer, Globecom Communication Theory Symposium	2013
	◇ Member, Tau Beta Pi	2010-Present
	◇ Member, Order of the Engineer	2012-Present
	◇ President, Eta Kappa Nu	2011-2012
	◇ President, Pro Musica	2010-2012
	◇ Musical Director, Cooper Dramatic Society	2009-2011