

Ethan R. Elenberg

CONTACT INFORMATION	201-892-4615 elenberg@utexas.edu http://eelenberg.github.io	3200 Tom Green Street Apartment A Austin, TX 78705
OBJECTIVE	Internship position that allows for research experience in the areas of large-scale Graph Algorithms, Feature Selection, and/or Machine Learning.	
EDUCATION	<p>The University of Texas at Austin, Austin, TX</p> <ul style="list-style-type: none">◇ Ph.D., Electrical and Computer Engineering, 2017 (Expected)◇ M.S., Electrical and Computer Engineering, May 2014 GPA: 3.9/4.0<ul style="list-style-type: none">– Research Supervisors: Sriram Vishwanath and Alexandros G. Dimakis– Academic Track: Communications, Networks, and Systems (CommNetS) <p>The Cooper Union for the Advancement of Science and Art, New York, NY</p> <ul style="list-style-type: none">◇ B.E., Electrical Engineering, <i>Summa Cum Laude</i>, May 2012 GPA: 4.0/4.0<ul style="list-style-type: none">– Signal Processing & Communications Track– Minor in Mathematics <p>Relevant Graduate Coursework: Adaptive Filters, Advanced Probability, Classical Coding Theory, Digital Video, Introduction to Compressive Sensing, Machine Learning for Large-Scale Data, Postmodern Coding Theory, Randomized Algorithms</p>	
WORK EXPERIENCE	<p>Graduate Research Assistant, The University of Texas <i>August 2013 - Present</i></p> <ul style="list-style-type: none">◇ Design distributed approximation algorithms for graph analytics.◇ Develop tools to analyze and visualize brain connectivity using task-based fMRI.◇ Establish performance guarantees for high-dimensional, greedy feature selection. <p>Summer Research Intern, MIT Lincoln Laboratory <i>May 2014 - August 2014</i></p> <ul style="list-style-type: none">◇ Formulated and developed novel entropy-based autofocus algorithms for nearfield SAR.◇ Evaluated performance on simulated, emulated, and measured SAR data. <p>Wireless Intern, Apple <i>May 2013 - August 2013</i></p> <ul style="list-style-type: none">◇ Developed an EVM analysis tool for cellular QPSK signals.◇ Provided factory support during an iPhone build. <p>Summer Research Intern, MIT Lincoln Laboratory <i>June 2012 - August 2012</i></p> <ul style="list-style-type: none">◇ Implemented extended and unscented Kalman filters in MATLAB for passive target tracking applications.◇ Developed and tested a proof-of-concept passive RF direction finding circuit. <p>S*PROCUM² Research Fellow, The Cooper Union <i>August 2011 - May 2012</i></p> <ul style="list-style-type: none">◇ Assisted with Cognitive Communications Gateway Engine software development.◇ Implemented Voice over IP transcoding for software defined radio applications. <p>Student Engineer, Southwest Research Institute <i>May 2011 - August 2011</i></p> <ul style="list-style-type: none">◇ Developed image processing software in C for a 4-slap fingerprint reader.◇ Assisted in mapping high-level algorithms to an embedded FPGA implementation.◇ Implemented adaptive filtering, AR inverse model, and NPR filter bank algorithms in MATLAB for audio processing. <p>Quantitative Research Intern, The Millburn Corporation <i>May 2010 - January 2011</i></p> <ul style="list-style-type: none">◇ Developed financial models and parallel computing clusters in both R and S-PLUS.	
TECHNICAL SKILLS	<p>Programs: Cygwin, Git, GNU Radio, MATLAB, Mercurial, Microsoft Office, Perforce, Spark, SPICE, Xcode, Xilinx ISE, Unix Shell</p> <p>Languages: C, C++, CUDA C, Motorola DSP 563xx assembly, HTML, \LaTeX, Objective C, PIC assembly, Python, R, Scala, VHDL</p> <p>Frameworks: GraphLab PowerGraph, NumbaPro, NumPy, Pandas, scikit-learn, TinyOS</p>	

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TECHNICAL SKILLS (CONTINUED)	<p>Algorithms: Backprojection imaging, correlation clustering, CoSaMP, graph-based visual saliency, greedy forward regression, k-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</p> <p>Laboratory: Digital multimeter, oscilloscope, vector network analyzer, wideband communication tester</p> <p>Security Clearance: Last active August 2014, information available upon request</p>	
SELECTED PUBLICATIONS AND PRESENTATIONS	<p>E.R. Elenberg, R. Khanna, A.G. Dimakis, and S. Negahban. "Restricted Strong Convexity Implies Weak Submodularity", in <i>Proc. NIPS Workshop on Learning in High Dimensions with Structure</i>, 2016 (to appear).</p> <p>A. Bonato, D.R. D'Angelo, E.R. Elenberg, D.F. Gleich, and Y. Hou. "Mining and Modeling Character Networks", in <i>Proc. WAW 2016</i> (to appear).</p> <p>E.R. Elenberg, K. Shanmugam, M. Borokhovich, and A.G. Dimakis. "Distributed Estimation of Graph 4-profiles", in <i>Proc. World Wide Web Conference</i>, April 2016.</p> <p>E.R. Elenberg, 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>J.I. Tamir, E.R. Elenberg, A. Banerjee, and S. Vishwanath. "Wireless Index Coding Through Rank Minimization", in <i>Proc. IEEE ICC</i>, Sydney, Australia, June 2014.</p> <p>J.L. Baylon, E.R. Elenberg, 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> <p>"Graph Profiles: Algorithms and Approximation Guarantees", <i>2016 SIAM Conference on Discrete Mathematics</i>, Atlanta, GA. Invited Speaker.</p> <p>"Kaggle Competitions." EE379K: Architectures for (Big) Data Science, UT Austin, Spring 2016. Guest Lecture.</p>	
ACADEMIC WORK	<p>Restricted Strong Convexity and Weak Submodularity 2016</p> <p>Triangle Sparsifier Bounds via Stein's Method Fall 2015</p> <p>A Distributed Framework for Estimating k-profiles of Large Graphs 2014-2015</p> <p>Video Saliency: Algorithms and Architectures Spring 2014</p> <p>Locality Sensitive Hashing Families for Large-Scale Image Compression 2013-2014</p> <p>iSCISM: interference Sensing and Coexistence in the ISM band 2011-2012</p> <p>– <i>First Place</i> - IEEE Region 1 Student Paper Competition</p> <p>– Sponsored by <i>ITT Exelis</i></p> <p>MATLAB Implementation of MPEG-1 Audio Layer 1 Compression Fall 2010</p>	
HONORS AND AWARDS	<p>Cockrell School Fellowship 2012-2016</p> <p>Microelectronics & Computer Development Fellowship 2012-2013</p> <p>Cooper Union Full Tuition Scholarship 2008-2012</p> <p>Harold S. Goldberg Leadership Prize May 2012</p> <p>Irwin L. Lynn Memorial Prize in Mathematics May 2012</p>	
MEMBERSHIPS	<p>Reviewer: ISIT 2016, NIPS 2015-2016, DySPAN 2014, Globecom 2013</p> <p>Student Member, IEEE 2011-Present</p> <p>Member, Tau Beta Pi 2010-Present</p> <p>Member, Order of the Engineer 2012-Present</p> <p>President, Eta Kappa Nu 2011-2012</p> <p>President, Pro Musica 2010-2012</p> <p>Musical Director, Cooper Dramatic Society 2009-2011</p>	