Ethan R. Elenberg

CONTACT INFORMATION	The University of Texas Department of Electrical and Computer Engineering 1616 Guadapule Street Room 7.511 B-9 Austin, TX 78701 USA	3200 Tom Green Street, Apt A Austin, TX 78705 USA 201-892-4615 elenberg@utexas.edu http://theseus.utlinc.org/elenberg

RESEARCH INTERESTS — Image Processing, Graph Analytics, Distributed Storage, Index Coding

EDUCATION

The University of Texas, Austin, TX

Ph.D., Electrical and Computer Engineering

M.S., Electrical and Computer Engineering, May 2014 GPA: 3.85/4.0
- Research Supervisors: Sriram Vishwanath and Alexandros G. Dimakis
- Academic Track: Communications, Networks, and Systems (CommNetS)

The Cooper Union for the Advancement of Science and Art, New York, NY

B.E., Electrical Engineering, May 2012 GPA: 4.0/4.0
- Full Tuition Scholarship, 2008-2012
- *Summa Cum Laude*
- Signal Processing & Communications Track
- Minor in Mathematics

ACADEMIC WORK

◇ A Distributed Framework for Estimating k-profiles of Large Graphs	2014-2015
◇ Video Saliency: Algorithms and Architectures	Spring 2014
◇ Locality Sensitive Hashing Families for Large-Scale Image Compression	2013-2014
◇ Multihop Interference Alignment	Spring 2013
◇ iSCISM: interference Sensing and Coexistence in the ISM band	2011-2012

- *First Place* - IEEE Region 1 Student Paper Competition
- Sponsored by *ITT Exelis*

◇ MATLAB Implementation of MPEG-1 Audio Layer 1 Compression	Fall 2010
◇ Development of a Vinyl Playback Simulator	2010
◇ Construction of a Morse Code Decoder	Spring 2009

TECHNICAL SKILLS

◇ **Programs:** Cygwin, GNU Radio, GraphLab, MATLAB, Microsoft Office, Perforce, S-PLUS, Spark, SPICE, Spyder, TinyOS, Visual C#, Xcode, Xilinx ISE, Unix Shell

◇ **Languages:** C, C++, CUDA C, Motorola DSP 563xx assembly, HTML, LaTeX, NumbaPro, Objective C, PIC assembly, Python, R, VHDL

◇ **Algorithms:** Adaptive filtering, backprojection imaging, correlation clustering, CoSaMP, graph-based visual saliency, image interpolation, locality sensitive hashing, Luby transform coding, nonlinear Kalman filtering, 802.11 Physical Layer, sparse PCA, support vector machines, WiMAX Physical Layer, zig-zag and replacement product

◇ **Laboratory:** Digital multimeter, oscilloscope, vector network analyzer, wideband communication tester

PUBLICATIONS

[1] J.I. Tamir, **E.R. Elenberg**, A. Banerjee, and S. Vishwanath. "Wireless Index Coding Through Rank Minimization", in *Proc. IEEE ICC*, Sydney, Australia, June 2014.

[2] J.L. Baylon, **E.R. Elenberg**, and S.G. Massengill. "iSCISM: interference Sensing and Coexistence in the ISM Band", *High Frequency Electronics*, vol. 11 no. 4 pp. 30-46, Apr. 2012.

PRESENTATIONS

[3] J.L. Baylon, **E.R. Elenberg**, and S.G. Massengill. "iSCISM: interference Sensing and Coexistence in the ISM Band," *2012 NEWSDR Workshop*, Boston, MA. Poster.

GRADUATE COURSEWORK	Adaptive Filters, Classical Coding Theory, Digital Video, Information Theory, Introduction to Compressive Sensing, Introduction to System Theory, Large-Scale Learning, Postmodern Coding Theory, Probability & Random Processes I, Randomized Algorithms, Wavelets & Multiresolution Imaging, Wireless Communications, Wireless System Design

WORK EXPERIENCE

Graduate Research Assistant, The University of Texas *August 2013 - Present*
- ◇ Member of Wireless Networking & Communications Group, LINC group.
- ◇ Developing locality sensitive hashing families for large-scale image analysis/compression.
- ◇ Developing frameworks for multimedia storage and caching.
- ◇ Designing distributed approximation algorithms for graph analytics.

Summer Research Intern, MIT Lincoln Laboratory *May 2014 - August 2014*
- ◇ Formulated and developed novel entropy-based autofocus algorithms for nearfield SAR.
- ◇ Evaluated performance on simulated, emulated, and measured SAR data.

Wireless Intern, Apple *May 2013 - August 2013*
- ◇ Developed an EVM analysis tool for cellular QPSK signals.
- ◇ Provided factory support during an iPhone build.

Summer Research Intern, MIT Lincoln Laboratory *June 2012 - August 2012*
- ◇ 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.

S*PROCOM [2] Research Fellow, The Cooper Union *August 2011 - May 2012*
- ◇ Assisted with Cognitive Communications Gateway Engine software development.
- ◇ Implemented Voice over IP transcoding for software defined radio applications.

Student Engineer, Southwest Research Institute *May 2011 - August 2011*
- ◇ 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.

Quantitative Research Intern, The Millburn Corporation *May 2010 - January 2011*
- ◇ Developed financial models and parallel computing clusters in both R and S-PLUS.

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
- — Jesse Sherman Book Award in Electrical Engineering   September 2011
- — Barry Federman SAME Scholarship   October 2010

MEMBERSHIPS

- ◇ Student Member, IEEE   2011-Present
  - — Reviewer, Globecom 2013 Communication Theory Symposium
  - — Reviewer, DySPAN 2014
- ◇ Member, Tau Beta Pi   2010-Present
- ◇ Member, Order of the Engineer   2012-Present
- ◇ President, Eta Kappa Nu   2011-2012
- ◇ President, Pro Musica   2010-2012