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

SECURITY CLEARANCE

Last active August 2014, information available upon request.

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.

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.

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

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

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