Andrew K. Massimino

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andymass

Education

Aug. 2012 – Dec. 2018 **Ph. D. in Electrical and Computer Engineering**, *Georgia Institute of Technology*, Atlanta, GA.
Advised by Dr. Mark A. Davenport. Minor in Mathematics.
Thesis title.–*Learning to adapt under practical sensing constraints.*

- Georgia Tech President's Fellowship.
- Algorithms and Randomness Center (ARC) Student Fellowship.

August 2017 **M. S. in Mathematics**, *Georgia Institute of Technology*, Atlanta, GA.
M. S. in Electrical and Computer Engineering, *Georgia Institute of Technology*, Atlanta, GA.

June 2007 – May 2011 **Bachelor of Engineering**, *The Cooper Union for the Advancement of Science and Art*, New York, NY.

- Full Tuition Merit-Based Scholarship. Electrical Engineering. *Magna Cum Laude*, GPA: 3.75/4.00.
- The Dale E. Zand Prize, "For Outstanding Achievement in the Understanding of Course Material," (awarded to one graduating senior in electrical engineering per year).

Work Experience

Jan. 2013 – Dec. 2018 **Graduate Research Assistant**, *Georgia Tech*, Atlanta, GA.
Statistical signal processing, machine learning, applied mathematics, probability, and optimization.

- Created new theory and algorithms for active information acquisition in applications with query constraints, applicable in numerous situations including imaging, recommender systems, rapid information retrieval tasks, targeted advertising, and psychological studies.
- Developed novel methods and theoretical guarantees for adaptively learning from pairwise comparison observations, useful for rapidly estimating a user's favorite movies, music, foods, etc.

Aug. 2015 – May 2016 **Research Mentor**, *Opportunity Research Scholars (ORS) Program, Georgia Tech*.
Managed and mentored a team of undergraduate students performing biomedical research in signal processing using sensor data to analyze wheel-chair seat posture to prevent injury.

June 2012 – Aug. 2012 **Research Intern**, *Naval Research Laboratory*, Washington, DC.
Deployed optical flow sensors in multi-robot tracking at the Laboratory for Autonomous Systems Research.

June 2009 – Aug. 2011 **Software Development Intern**, *Research and Development, Bloomberg L.P.*, New York, NY.
Internal Systems, Sales Reporting and Workflow Department (May 2010 – Aug. 2011)

- Developed various customer relationship management (CRM) applications in use by company sales representatives, including user interface, back-end, and database design.
- Created a wizard-style interface for event registrations which was used internally for event planning.
- Used Microsoft BING map and address geocoding technologies to build a new map-based CRM tool allowing sales representatives to plan trips and discover points of interest nearby their prospective clients.

UI Infrastructure Department (June 2009 – Aug. 2009)

- Improved team SVN tool and evaluated Microsoft WPF for modernizing product user interfaces.

Jan. 2009 – May 2010 **Computer Center Senior Operator**, *The Cooper Union*, New York, NY.
Programmed a new Perl/Asterisk-based voicemail system for departments and faculty members.

Skills

Languages C, C++, Matlab, Python (NumPy, SciPy, Stan probability modeling), Perl, Vimscript, Javascript, C#.

Software LaTeX, Git, Vim, TensorFlow, MS SQL, Google Cloud Platform, Windows, Linux.

Open source contributions

Repeated contributor to the vim editor.
Including submitting accepted patches, bug reports, and works in progress for the development of new features.

Nov. 2017 – present **Match-up (vim plugin) ★300+**, author, /andymass/vim-matchup.
Improves the editor's ability to highlight, navigate, and operate on sets of matching text.

July 2017 – present **Tradewinds (vim plugin) ★70**, author, /andymass/vim-tradewinds.
Allows moving an editor window into a new split of its neighboring windows.

Teaching

Fall 2012 **Teaching Assistant for ECE 2026: Intro to Digital Signal Processing**, *Georgia Tech*, Atlanta, GA.
Instructed 2–3 lab sessions each week for the introductory digital signal processing course, assisting students with Matlab and fundamental concepts in signal processing; verified lab progress and graded assignments.

Spring 2010 & 2011 **Instructor of a Matlab Seminar**, *The Cooper Union*, New York, NY.
Prepared and delivered weekly lectures, created and graded assignments.

Publications & patent

Greg Canal, **A. K. Massimino**, Mark A. Davenport, and Chris Rozell. Active embedding search via noisy paired comparisons. *Submitted*, January 2019. U.S. provisional patent application 62/800,686 filed February 4, 2019.

A. K. Massimino. *Learning to adapt under practical sensing constraints*. PhD thesis, Georgia Institute of Technology, Atlanta, GA, December 2018.

A. K. Massimino and Mark A. Davenport. As you like it: Localization via paired comparisons. *Submitted*, February 2018. Preprint available on arXiv: `https://arxiv.org/abs/1802.10489`.

A. K. Massimino and Mark A. Davenport. The geometry of random paired comparisons. In *Proc. IEEE Int. Conf. on Acoustics, Speech, and Signal Processing (ICASSP)*, New Orleans, LA, March 2017.

M. A. Davenport, **A. K. Massimino**, D. Needell, and T. Woolf. Constrained Adaptive Sensing. *IEEE Trans. Signal Processing*, 64(20):5437–5449, October 2016. (available arXiv:1506.05889).

A. K. Massimino and M. A. Davenport. Binary stable embedding via paired comparisons. In *Proc. IEEE Work. on Statistical Signal Processing (SSP)*, Palma de Mallorca, Spain, June 2016.

M. G. Moore, **A. K. Massimino**, and M. A. Davenport. Randomized multi-pulse time-of-flight mass spectrometry. In *IEEE Int. Work. on Comput. Advances in Multi-Sensor Adaptive Processing (CAMSAP)*, Cancun, Mexico, December 2015.

M. A. Davenport, **A. K. Massimino**, D. Needell, and T. Woolf. Constrained adaptive sensing. In *Workshop on Signal Processing with Adaptive Sparse Structured Representations (SPARS)*, Cambridge, United Kingdom, July 2015.

A. K. Massimino and Mark A Davenport. One-bit matrix completion for pairwise comparison matrices. In *Workshop on Signal Processing with Adaptive Sparse Structured Representations (SPARS)*, Lausanne, Switzerland, July 2013.