Andrew K. Massimino

(516) 528–2327
ak.massimino@gmail.com
andymass

Education

Dec. 2018 **Ph. D. in Electrical and Computer Engineering**, *Georgia Institute of Technology*, Atlanta, GA.
Minor in Mathematics. Doctoral dissertation.–*Learning to adapt under practical sensing constraints*

Aug. 2017 **Master of Science, Mathematics**, *Georgia Institute of Technology*, Atlanta, GA.
Master of Science, Electrical and Computer Engineering, *Georgia Institute of Technology*, Atlanta, GA.

May 2011 **Bachelor of Engineering**, *The Cooper Union for the Advancement of Science and Art*, New York, NY.
Electrical Engineering. Full Tuition Merit-Based Scholarship. *Magna Cum Laude*

Work Experience

Jan. 2013 – Dec. 2018 **Georgia Tech**, *Graduate Research Assistant*, Atlanta, GA.
Areas of expertise: Statistical signal processing, machine learning, recommendation systems, applied mathematics, probability, statistics, regression, estimation, inference, and optimization.

- Developed novel methods and theoretical guarantees for active learning from pairwise comparison observations using a preference model to adaptively and rapidly estimate a user's favorite movies, music, foods, etc.
- 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.
- Implemented methods using Matlab and Python and validated approaches on real and synthetic datasets.

Aug. 2015 – May 2016 **Georgia Tech**, *Research Mentor, Opportunity Research Scholars (ORS) Program*.
Managed and mentored a team of 4 undergraduate students performing biomedical research using machine learning techniques on sensor data to analyze wheel-chair seat posture to prevent injury.

June 2012 – Aug. 2012 **Naval Research Laboratory**, *Research Intern*, Washington, DC.
Deployed optical flow sensors for multi-robot tracking at the Laboratory for Autonomous Systems Research. Used a 3D printer to fabricate sensor housings and developed algorithms to convert sensor data into spatial information.

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

- Used C#, C++, Javascript, Java, and SQL to developed customer relationship management (CRM) applications used by company sales representatives, including user interface, back-end, and relational database design.
- Created an easy-to-use wizard-style interface for event registrations used company-wide.
- 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.
- Produced intuitive visualizations of customer data for business analytics and sales metrics tracking.

User Interface Infrastructure Department (June 2009 – Aug. 2009)

- Enhanced SVN tool by writing a plugin in C++ to improve team's code development workflow.
- Created a prototype to evaluate Microsoft WPF (C#) for modernizing financial product user interfaces.

Jan. 2009 – May 2010 **The Cooper Union**, *Computer Center Senior Operator*, 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, MS SQL Server, TensorFlow, Google Cloud Platform; Linux, Unix, Windows.

Open source contributions

Nov. 2017 – present **Repeated contributor to the vim editor**.
Including submitting accepted patches, bug reports, and works in progress for the development of new features.

Match-up (vim plugin) ★ 320, author, github.com/andymass/vim-matchup.
Improves the editor's ability to highlight, navigate, and operate on sets of matching text.

Tradewinds (vim plugin) ★ 70, author, github.com/andymass/vim-tradewinds.
Allows moving an editor window into a new split of its neighboring windows.

Teaching

Fall 2012 **Teaching Assistant for the Intro to Digital Signal Processing class**, *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.

Awards

2012 – 2016 Georgia Tech President's Fellowship.

2014 Algorithms and Randomness Center (ARC) Student Fellowship.

2011 Dale E. Zand Prize for Outstanding Achievement in Electrical Engineering (Cooper Union).

Publications & patent pending

G. Canal, **A. K. Massimino**, M. A. Davenport, and C. Rozell. Active embedding search via noisy paired comparisons. In *Proc. Int. Conf. on Machine Learning (ICML)*, Long Beach, CA, June 2019. U.S. provisional patent application 62/800,686 filed February 4, 2019.

A. K. Massimino and M. 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 M. 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. Presented at poster session.

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. Attended.

A. K. Massimino and M. 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. Presented at poster session.