

Michael I Mandel

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Objective A summer internship applying machine learning to music retrieval, hearing, or vision.

Job Skills

- Software design and implementation in Java (including JNI, Swing, and Audio Libraries), Matlab, C/C++, Perl, Python, Ruby, and Scheme.
- Unix/Linux system administration.
- Facility with MySQL, Rails, MS Windows, L^AT_EX, Emacs, CSound

Education **Columbia University** Expected Graduation June, 2009

- School of Engineering and Applied Sciences Presidential Fellow
- MS Degree in Electrical Engineering, February 2006
- Pursuing PhD degree in Electrical Engineering
- Graduate research assistant for Prof. Dan Ellis since September 2004
- Related course work: Bayesian Data Analysis, Detection / Estimation Theory, Advanced Machine Learning, Computational Imaging, Speech Recognition

Massachusetts Institute of Technology Graduated June, 2004

- Bachelor of Science in Computer Science and Engineering, GPA: 4.9/5
- Related course work: 6.011: Intro to Communication, Control, and Signal Processing, 6.431: Applied Probability, 6.801: Machine Vision, 6.803: The Human Intelligence Enterprise, 21M.566: Audio Processing by Humans and Machines

Selected Publications *An EM algorithm for localizing multiple sound sources in reverberant environments.* M. Mandel, D. Ellis, and T. Jebara. Proc. of NIPS 2007.

Support vector machine active learning for music retrieval. M. Mandel, G. Poliner, and D. Ellis. Multimedia Systems, May 2006, Pages 1-11.

Distributed occlusion reasoning for tracking with nonparametric belief propagation. E. Sudderth, M. Mandel, W. Freeman, and A. Willsky. Proc. of NIPS 2005.

Experience **Owl Multimedia**, Co-founder, Dir. Technology Mar - Sep 2006

Owl Multimedia's music search allows users to find music that sounds similar to the music they already like.

- Designed and implemented client- and server-side feature extraction.
- Managed two developers on design and implementation of main site.
- Administered and maintained database and web servers.

Bose Corporation Jun - Aug 2004

uMusicTM digitally stores and organizes your CDs. It's like your own personal DJ.

- Conducted listening survey studying perceptual and emotional reactions to music.
- Prototyped machine listening for uMusicTM system using survey data.

MIT AI Lab under Prof Bill Freeman Feb 2003 - Jun 2004

Nonparametric Belief Propagation (NBP) extends particle filtering to the more general visual problems that graphical models can describe.

- Built an NBP-based hand/finger tracker.
- Coauthored two papers (see publications).
- Wrote Matlab, Mex, and C++ code for an NBP library, including parallelization.