

Dawen Liang

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EDUCATION

- Columbia University, New York, NY** 2012.9 – present
Ph.D. Candidate in *Electrical Engineering*
Advisor: Prof. Dan Ellis, Department of Electrical Engineering
Research interests: Bayesian modeling with applications to audio/music understanding and recommendation.
- Carnegie Mellon University, Pittsburgh, PA** 2010.9 – 2012.5
M.S. in *Music and Technology*
Advisor: Prof. Roger Dannenberg, School of Computer Science
Thesis: “An Interactive Personal Audio Database for Musicians”
- Fudan University, Shanghai, China** 2006.9 – 2010.6
B.S. in *Computer Science*

WORKING EXPERIENCE

- Graduate Research Assistant**, Columbia University 2012.9 – present
Laboratory for the Recognition and Organization of Speech and Audio (*LabROSA*)
Conduct research on:
 - Statistical machine learning and application to audio signals.
 - Large-scale music recommendation/retrieval.
- Recommendation Systems Scientist Intern**, Pandora Radio 2015.5 – 2015.8
Playlist Team Mentor: Dr. Erik Schmidt and Dr. Keki Burjorjee
 - Investigate hybrid approaches to collaborative filtering.
- Research Intern**, Adobe Systems Incorporated Summer 2013, 2014
Adobe Creative Technology Laboratory Mentor: Dr. Matt Hoffman and Dr. Gautham Mysore
 - Work on novel Bayesian hierarchical Product-of-Filters model of audio.
 - Explore statistical model based approach to speech denoising and dereverberation.
- Research Assistant**, Carnegie Mellon University 2010.9 – 2012.5
Computer Music Group
 - Work on *Human Computer Music Performance* project and related Machine Learning/Music Information Retrieval research with Prof. Roger Dannenberg.
- Software Development Engineer Intern**, Amazon.com 2011.5 – 2011.8
Kindle – Digital Delivery Team
 - Design and implement an efficient scheduling algorithm for periodicals delivery (deployed in production).

PUBLICATIONS

Peer-reviewed Journal Articles

- *Methods and Prospects for Human Computer Performance of Popular Music*, Roger B. Dannenberg, Nicolas E. Gold, **Dawen Liang**, Guangyu Xia, in *Computer Music Journal*, 38(2):36-50, 2014.
- *Active Scores: Representation and Synchronization in Human-Computer Performance of Popular Music*, Roger B. Dannenberg, Nicolas E. Gold, **Dawen Liang**, Guangyu Xia, in *Computer Music Journal*, 38(2):51-62, 2014.

Peer-reviewed Conference Papers and Workshop Contributions

- *Content-Aware Collaborative Music Recommendation Using Pre-trained Neural Networks*, **Dawen Liang**, Minshu Zhan, and Daniel P. W. Ellis, in *Proceedings of the 16th International Society for Music Information Retrieval (ISMIR)*, Spain, 2015. (Preliminary version appears in *ICML Workshop on Machine Learning for Music Discovery*, 2015.)
- *Landmarking Manifolds with Gaussian Processes*, **Dawen Liang** and John Paisley, in *International Conference on Machine Learning (ICML)*, France, 2015.
- *Speech Dereverberation using a Learned Speech Model*, **Dawen Liang**, Matthew D. Hoffman, and Gautham J. Mysore, in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Australia, 2015 (Selected for oral presentation).
- *Beta Process Non-negative Matrix Factorization with Stochastic Structured Mean-Field Variational Inference*, **Dawen Liang** and Matthew D. Hoffman, in *NIPS Workshop on Advances in Variational Inference*, Montreal, 2014.
- *Codebook-based Scalable Music Tagging with Poisson Matrix Factorization*, **Dawen Liang**, John Paisley, and Daniel P. W. Ellis, in *Proceedings of the 15th International Society for Music Information Retrieval (ISMIR)*, Taiwan, 2014.
- *mir_eval: A Transparent Implementation of Common MIR Metrics*, Colin Raffel, Brian McFee, Eric J. Humphrey, Justin Salamon, Oriol Nieto, **Dawen Liang**, and Daniel P. W. Ellis, in *Proceedings of the 15th International Society for Music Information Retrieval (ISMIR)*, Taiwan, 2014.
- *Speech Decoloration based on the Product-of-Filters Model*, **Dawen Liang**, Daniel P. W. Ellis, Matthew D. Hoffman, and Gautham J. Mysore, in *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Italy, 2014 (Selected for oral presentation).
- *A Generative Product-of-Filters Model of Audio*, **Dawen Liang**, Matthew D. Hoffman, and Gautham J. Mysore, in *Proceedings of the International Conference on Learning Representations (ICLR)*, Canada, 2014.
- *Beta Process Sparse Nonnegative Matrix Factorization for Music*, **Dawen Liang**, Matthew D. Hoffman, and Daniel P. W. Ellis, in *Proceedings of the 14th International Society for Music Information Retrieval (ISMIR)*, Brazil, 2013 (Selected for oral presentation, Best Student Paper Award).
- *Segmentation, Clustering, and Display in a Personal Music Database for Musicians*, Guangyu Xia, **Dawen Liang**, Roger B. Dannenberg, and Mark J. Harvilla, in *Proceedings of the 12th International Society for Music Information Retrieval (ISMIR)*, USA, 2011.
- *A Framework for Coordination and Synchronization of Media*, **Dawen Liang**, Guangyu Xia, and Roger B. Dannenberg, in *Proceedings of the 11th International Conference on New Interfaces for Musical Expression (NIME)*, Norway, 2011 (Selected for oral presentation).

TEACHING EXPERIENCE

Teaching Assistant

- COMS W4721 Machine Learning for Data Science, Columbia University, Spring 2015.
- EECS E6892 Bayesian Models for Machine Learning, Columbia University, Spring 2014.
- ELEN E4810 Digital Signal Processing, Columbia University, Fall 2012, Fall 2013.
- 15-323 Computer Music Systems and Information Processing, Carnegie Mellon, Spring 2012.
- 15-322 Introduction to Computer Music, Carnegie Mellon, Spring 2011.

SELECTED COURSEWORK

Theory	Statistical Inference Theory, Probability Theory (Measure-theoretic), Convex Optimization, Sparse Representation and High-Dimensional Geometry, Advanced Digital Signal Processing
Application	Statistical Modeling and Data Analysis, Bayesian Data Analysis, Machine Learning, Probabilistic Graphical Models, Multimedia Databases and Data Mining, Speech Recognition

SKILLS

- Languages** Python (Numpy/Scipy), R, MATLAB, Java, C/C++, GO, SQL
Software Vim, Eclipse, Xcode, Weka, Hadoop
Experience Object-oriented programming and unit tests; TCP/IP, network programming, and concurrency programming; familiar with Windows/Mac OS/Linux development environment.

AWARDS and ACTIVITIES**Best student paper award, ISMIR 2013**

- For “Beta Process Sparse Nonnegative Matrix Factorization for Music”.

Best poster presentation award, ISMIR 2014

- For “mir_eval: A Transparent Implementation of Common MIR Metrics”.

Student Travel Grant, ISMIR 2014**Reviewer:**

- International Conference on Machine Learning (ICML) 2015
- International Joint Conferences on Artificial Intelligence (IJCAI) 2015
- International Society for Music Information Retrieval (ISMIR) 2014 – 2015
- Neural Information Processing Systems (NIPS) 2013 – 2015

REFERENCES

Available upon request