Ethan Manilow

CONTACT
INFORMATION

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EDUCATION

Ph.D. in Computer Science and Communication

Northwestern University, Evanston, IL
Technology and Social Behavior Program
Advisor: Bryan Pardo
2015 – Present

B.S. Physics
B.F.A. Jazz Studies (Guitar)

University of Michigan, Ann Arbor, MI. May 2013

- University Honors Award Winter 2008, Winter 2009, Fall 2011
- GPA: 3.34

RESEARCH
EXPERIENCE

Graduate Researcher 2015 - Present
Interactive Audio Lab
P.I.: *Bryan Pardo*
EECS Department, Northwestern University, Evanston, IL.

Research Intern Fall 2018
Speech and Audio Group
Mentors: *Gordon Wichern* and *Jonathan LeRoux*
Mitsubishi Electric Research Lab (MERL), Cambridge, MA.

Research Assistant 2011 - 2013
ATLAS Group, Large Hadron Collider (LHC), CERN
P.I.: *Daniel Levin*
Physics Department, University of Michigan, Ann Arbor, MI.

Research Assistant Summer 2012
Mechanosynthesis Group
P.I.: *John Hart*
Deptartment of Mechanical Engineering, University of Michigan,
Ann Arbor, MI.

PROFESSIONAL
EXPERIENCE

Software Engineer 2013 - 2015
National Instruments
- On LabVIEW's compiler team fixing bugs and creating new features (C++, and C#), the most substantial of which was a feature for referencing external code.
- Full stack web developer for internal webapp that tracked user crash data.

Professional Freelance Musician
Guitar, Bass 2008 - Present
- Performed as a professional guitarist in many states in the U.S. and Mexico.
- Played as both lead and backup in dance ensembles, pit orchestras, jazz combos, and rock groups.

HONORS	**Segal Design Cluster Fellowship**
	Northwestern University · Winter 2017

REFEREED CONFERENCE PROCEEDINGS	**Ethan Manilow**, Prem Seetharaman, and Bryan Pardo. The Northwestern University Source Separation Library. In *Proceedings of the International Society of Music Information Retrieval (ISMIR)*, 2018. *(Forthcoming)*

Ethan Manilow*, Prem Seetharaman*, Fatemeh Pishdadian*, and Bryan Pardo. Predicting Algorithm Efficacy for Adaptive Multi-Cue Source Separation. In *Proceedings of the IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)*, 2017. (*Authors contributed equally.) **Merit-based Travel Grant Recipient**

Ethan Manilow and Bryan Pardo. Leveraging Repetition to Do Audio Imputation In *Proceedings of the IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)*, 2017.

JOURNAL PUBLICATIONS	N. Amram, et al. (**ATLAS Group**). Streamlined Calibrations of the ATLAS Precision Muon Chambers for Initial LHC Running. In *Nuclear Instruments and Methods in Physics Research Section A*, April 2012.

UNREFEREED PRESENTATIONS	nussl: A Flexible Python Audio Source Separation Library, *Midwest Music and Audio Day (MMAD)*. Evanston, IL. June 23, 2017. (Talk)

WUT? A New Interface for Interactive Audio Source Separation, *Human Computer Interaction Consortium (HCIC)*, Pajaro Dunes, Watsonville, CA. June 24 - June 28, 2018 (Poster)

PROJECTS	Web Unmixing Toolbox · 2017 - Present

Lead developer of the Web Unmixing Toolbox (WUT). WUT is a web-based interactive audio source separation tool for expert and non-expert end-users. WUT enables familiar interactions (editing the spectrogram, mixing together results), as well as novel interactions (predicted quality as volume envelope data, and visualization of PCA projections of high-dimensional Deep Clustering space).
`github.com/interactiveaudiolab/WUT`

nussl · 2015 - Present
Lead developer of the Northwestern University Source Separation Library (nussl), which is a flexible, object-oriented python audio source separation library containing implementations of common source separation algorithms as well as an easy-to-use framework for prototyping and adding new algorithms.
`github.com/interactiveaudiolab/nussl`

LabVIEW Hack Computer Simulation · 2014
A functional computer simulation built using only primitive NAND gates all in LabVIEW. Implemented: All primitive and compound logic gates, ALU, registers, clock, and RAM. (LabVIEW)

Audio Visualization for Senior Recital · 2013
A full screen program that displays a representation of a live audio stream, and a randomly chosen video. (C++, OpenFrameworks)

Computational Physics Algorithms   2013
An implementation of a number of historical mathematical and physical algorithms.
Originally from Mark Newman's Computational Physics course, Winter 2013. (Python)

SampSyn   2012
A Mac OSX real-time, granular music synthesizer that creates output based on MIDI
input and a user specified audio file. Presented at AES Conference, San Francisco 2012.
(Cocoa, Objective-C, C++) `github.com/ethman/SampSyn`

Service   **Board Member**   2018 - Present
Northwestern University Computer Science PhD Advisory Counsel (CSPAC)

                   Reviewer   2018
IEEE Signal Processing Magazine

                   Conference Reviewer   2018
European Signal Processing Conference (EUSIPCO)

                   Conference Reviewer   2018
IEEE International Conference on Acoustics, Speech, and Signal Processing

                   Conference Reviewer   2018
ACM International conference on Tangible, Embedded and Embodied Interaction (TEI)

                   Conference Reviewer   2017
IEEE Workshop on Applications of Signal Processing to Audio and Acoustics

                   Conference Reviewer   2017
IEEE International Conference on Acoustics, Speech, and Signal Processing

Teaching   **Course Designer and Teaching Assistant**
Experience   Digital Luthier, EECS 397/SAI 402   Spring 2018
                   Northwestern University

                   Teaching Assistant
                   Machine Learning, EECS 349   Fall 2016
                   Northwestern University

Selected   • Theories and Practices of HCI, NU, *Darren Gergle*
Coursework   • Deep Learning, NU, *Bryan Pardo*
                   • Machine Learning, NU, *Bryan Pardo*
                   • Digital Signal Processing, NU, *Thrasos Pappas*
                   • Human Perception and Electronic Media, NU, *Thrasos Pappas*
                   • Digital Sound Synthesis, UM *Georg Essl*
                   • Mobile Phone Ensemble, UM *Georg Essl*
                   • Mathematical and Scientific Perspectives on Music Theory, UM, *R. Satyendra*
                   • Computational Physics, UM, *Mark Newman*

RECORDINGS	The Voluptuous Neighbors Technicolor EP — Lead Guitar https://thevoluptuousneighbors.bandcamp.com/album/technicolor	Apr 2015
	Lou Breed Stoned Out Two: Morning of the Way to Love — Guitar https://loubreed.bandcamp.com/album/stoned-out-two-morning-of-the-way-to-love	Feb 2013
	Senior Recital http://ethanmanilow.bandcamp.com/	Feb 2013
	AAURAL II Composer — http://grlmtn.com/album/aaural-ii	July 2012
AS A PERFORMER	Michigan Mobile Phone Ensemble Designed and implemented three iPhone instruments with urMus API by Georg Essl. Composed and performed one piece for each instrument. (lua)	Apr 2013
	Senior Recital In partial fufillment of a BFA in Jazz Studies. With a live, custom computer visualization and bassist Joe Fee.	Feb 2013
	Dance Related Arts Composed, performed, and danced. A multimedia dance piece inspired by documentary Man on Wire. http://youtu.be/5biW_YI8CH4	Dec 2011
	Puerta Vallarta Jazz Festival Guitar player for the Downbeat-award winning high school vocal jazz group Take One.	Feb 2010

OTHER NOTABLE PERFORMANCES

SXSW Showcase (TNM Theater) with VNeighbs, Guitar	Mar 2015
University of Michigan Jazz Lab Band, Guitar	Dec 2012
University of Michigan Jazz Lab Band, Guitar	Mar 2012
Junior Recital, Guitar	Mar 2011
Dancing Americas, chor. Diane MacIntyre, Guitar	Jan 2011

MUSICALS
Rent, Dr. Horrible's Sing Along Blog, Bye Bye Birdie, Altar Boyz, University of Michigan CRLT Players, Gibson Fleck

SKILLS
Programming Languages (and Frameworks): Python (Numpy, Scipy, Scikit Learn, Keras, PyTorch, Flask), JavaScript (JQuery), C#, C++, LabVIEW, MATLAB, Objective-C, PHP, LaTeX, PostgreSQL, Lua, ChuCK, Max/MSP, PureData.
Software: Apple Logic Pro, Adobe Creative Suite, PyCharm, Docker, WebStorm, Emacs, Xcode, Visual Studio, Perforce, Raspberry Pi, Arduino, Git, vim, redis, nginx.