

# Ethan Manilow

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CONTACT INFORMATION      4024 N Clarendon, Unit 102      +1 (847) 710-9902  
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http://ethanmanilow.com

## EDUCATION      **Ph.D. in Computer Science and Communication**

Northwestern University, Evanston, IL  
Technology and Social Behavior Program  
Advisor: Bryan Pardo  
2015 – 2020 (*Expected*)

### **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 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*  
Dept. 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**      2008 - Present  
Guitar, Bass

- 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**      Winter 2017  
Northwestern University

REFEREED CONFERENCE PROCEEDINGS	<p><b>Manilow, Ethan</b>, Prem Seetharaman, Fatemeh Pishdadian, and Bryan Pardo. Predicting Algorithm Efficacy for Adaptive Multi-Cue Source Separation. In <i>Proceedings of the IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)</i>, 2017. <b>*Merit-based Travel Grant Recipient*</b></p> <p><b>Manilow, Ethan</b> and Bryan Pardo. Leveraging Repetition to Do Audio Imputation In <i>Proceedings of the IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)</i>, 2017.</p>
JOURNAL PUBLICATIONS	N. Amram, et al. ( <b>ATLAS Group</b> ). Streamlined Calibrations of the ATLAS Precision Muon Chambers for Initial LHC Running. In <i>Nuclear Instruments and Methods in Physics Research Section A</i> , April 2012.
UNREFEREED TALKS	nussl: A Flexible Python Audio Source Separation Library, <i>Midwest Music and Audio Day (MMAD)</i> . Evanston, IL. June 23, 2017.
PROJECTS	<p>Web Unmixing Toolbox <span style="float: right;">2017 - Present</span>  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).  <a href="https://github.com/interactiveaudiolab/WUT">github.com/interactiveaudiolab/WUT</a></p> <p>nussl <span style="float: right;">2015 - Present</span>  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.  <a href="https://github.com/interactiveaudiolab/nussl">github.com/interactiveaudiolab/nussl</a></p> <p>LabVIEW Hack Computer Simulation <span style="float: right;">2014</span>  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)</p> <p>Audio Visualization for Senior Recital <span style="float: right;">2013</span>  A full screen program that displays a representation of a live audio stream, and a randomly chosen video. (C++, OpenFrameworks)</p> <p>Computational Physics Algorithms <span style="float: right;">2013</span>  An implementation of a number of historical mathematical and physical algorithms. Originally from Mark Newman's Computational Physics course, Winter 2013. (Python)</p> <p>SampSyn <span style="float: right;">2012</span>  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++) <a href="https://github.com/ethman/SampSyn">github.com/ethman/SampSyn</a></p>
EXTERNAL SERVICE	<p><b>Conference Reviewer</b>  EUSIPCO <span style="float: right;">2018</span></p> <p><b>Conference Reviewer</b></p>

	ICASSP	2018
	<b>Conference Reviewer</b> ACM TEI	2018
	<b>Conference Reviewer</b> WASPAA	2017
	<b>Conference Reviewer</b> ICASSP	2017
TEACHING EXPERIENCE	<b>Course Designer and Teaching Assistant</b> Digital Luthier, EECS 397/SAI 402 Northwestern University	Spring 2018
	<b>Teaching Assistant</b> Machine Learning, EECS 349 Northwestern University	Fall 2016
SELECTED COURSEWORK	<ul style="list-style-type: none"> <li>• Theories and Practices of HCI, NU, <i>Darren Gergle</i></li> <li>• Deep Learning, NU, <i>Bryan Pardo</i></li> <li>• Machine Learning, NU, <i>Bryan Pardo</i></li> <li>• Digital Signal Processing, NU, <i>Thrasos Pappas</i></li> <li>• Human Perception and Electronic Media, NU, <i>Thrasos Pappas</i></li> <li>• Digital Sound Synthesis, UM <i>Georg Essl</i></li> <li>• Mobile Phone Ensemble, UM <i>Georg Essl</i></li> <li>• Mathematical and Scientific Perspectives on Music Theory, UM, <i>R. Satyendra</i></li> <li>• Computational Physics, UM, <i>Mark Newman</i></li> </ul>	
RECORDINGS	The Voluptuous Neighbors Technicolor EP — Lead Guitar <a href="https://thevoluptuousneighbors.bandcamp.com/album/technicolor">https://thevoluptuousneighbors.bandcamp.com/album/technicolor</a>	Apr 2015
	Lou Breed Stoned Out Two: Morning of the Way to Love — Guitar <a href="https://loubreed.bandcamp.com/album/stoned-out-two-morning-of-the-way-to-love">https://loubreed.bandcamp.com/album/stoned-out-two-morning-of-the-way-to-love</a>	Feb 2013
	Senior Recital <a href="http://ethanmanilow.bandcamp.com/">http://ethanmanilow.bandcamp.com/</a>	Feb 2013
	AAURAL II Composer — <a href="http://grlmtn.com/album/aaural-ii">http://grlmtn.com/album/aaural-ii</a>	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 fulfillment of a BFA in Jazz Studies. With a live, custom computer visualization and bassist Joe Fee.	Feb 2013

Dance Related Arts Dec 2011  
Composed, performed, and danced. A multimedia dance piece inspired by documentary  
Man on Wire. [http://youtu.be/5biW\\_YI8CH4](http://youtu.be/5biW_YI8CH4)

Puerta Vallarta Jazz Festival Feb 2010  
Guitar player for the Downbeat-award winning high school vocal jazz group Take One.

*OTHER NOTABLE PERFORMANCES*

<i>SXSW Showcase (TNM Theater) with VNeighbs</i> , Guitar	Mar 2015
<i>University of Michigan Jazz Lab Band</i> , Guitar	Dec 2012
<i>University of Michigan Jazz Lab Band</i> , Guitar	Mar 2012
<i>Junior Recital</i> , Guitar	Mar 2011
<i>Dancing Americas, chor. Diane MacIntyre</i> , 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, L<sup>A</sup>T<sub>E</sub>X, 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.