

## NOLAN LEM

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### EDUCATION

Stanford University <b>Ph.D. Computer-Based Music Theory and Acoustics</b> Center for Computer Research in Music and Acoustics (CCRMA)	<b>2020 (expected)</b>
Columbia University <b>Master of Fine Arts (MFA)</b> Sound Arts – Computer Music Center (CMC)	<b>2015</b>
University of Kansas <b>Bachelors of Science in Electrical Engineering (BSEE)</b>	<b>2013</b>
University of Miami (FL) <b>Bachelors of Music (BM)</b> Studio Music and Jazz Saxophone	<b>2008</b>

### TEACHING EXPERIENCE

Stanford University – CCRMA <b>Teaching Assistant, Psychophysics and Music Cognition</b> Co-taught seminar in perception, psychoacoustics, cognition, and neuroscience of music.	<b>2016</b>
Stanford University – CCRMA <b>Teaching Assistant, Physical Interaction Design for Music</b> Co-taught course in physical computing in sound-related applications. Assisted students developing and implementing sensor and hardware-based designs for their individual projects.	<b>2016</b>
Columbia University – Computer Music Center <b>Teaching Assistant, Sound: Physics and Perception</b> Co-taught course content related to psychoacoustics, wave propagation, biological sound, physiology of hearing, and electronic sound production. Designed and carried out experiments demonstrating sonic principles.	<b>2014</b>

### RELATED EXPERIENCE

<i>Seismic Sound Lab</i> – Geophysics and Seismology: Lamont-Doherty Earth Observatory <b>Sound Researcher</b> Developed computer programs to sonify and visualize seismological data in multichannel applications. Created open-source Python Library to acquire, render, and sonify earthquake data.	<b>2014 – Present</b>
<i>Technical Assistant</i> <b>Technical Assistant to Jean-Baptiste Barrière</b> Worked with Jean-Baptiste Barrière on his installation, <i>Jardin des songe</i> and the Miller Theater Composer Portrait concert.	<b>2014</b>
<i>Center for the Remote Sensing of Ice Sheets (CRISIS)</i> – EECS Department	

**Researcher****2011 – 2012**

Developed programmatic model for rendering climate and glaciological data into sound and image. Programming in C++ with audio synthesis in Max/MSP.

*Viacom*

**Audio Intern: News and Documentaries****2007**

Developed web application for distributing song playlists to viewers. Edited music that was selected for News and Documentary programs for MTV.

## PAPERS AND CONFERENCES

- 2014 *Toward an Acoustemology of Sound Art: Dice Roll (2014)* – Columbia Ethnomusicology
- 2013 *Swarm Theory and Sonic Emergence: Swarm and Drone*, DorkBot Conference, Prentis Hall, Columbia University
- 2013 Recipient of *Rummer Design Award* – Highest Award granted to student in EECS department – University of Kansas
- 2011 *Mutatis Mutandis* audio-visual installation, New Interfaces for Musical Expression (NIME) University of MI, Ann Arbor
- 2010 Keynote Speaker Undergraduate Honors Research Symposium – Sound in Data: Perceiving Climate Change, KU

## GRANTS – AWARDS – COMMISSIONS

- 2016 New Music USA: QuBit – SOUNDART2016 – Lower East Side, Manhattan, NYC
- 2015 HiveMind. Finalist, FETA Prize in Sound Art – Miami, FL
- 2014 West Harlem Art Fund: *Under the Viaduct* – Sound Art Installation
- 2014 National Science Foundation (NSF) – *Seismic Sound Lab: Sights, Sounds and Perception of Earth as an Acoustic Space*
- 2011 Biodiversity Institute and Hall Center for the Humanities: *Mutatis Mutandis* installation
- 2010 Spencer Museum of Art: *Reflection/Projection* sound installation

## RESIDENCIES

- 2016 MassMoCA Artist Residency – North Adams, MA
- 2016 Pioneer Works Center for Art and Technology – Residency Program, Brooklyn, NY
- 2015 Signal Culture—Artist Residency, Owego, NY

## SELECTED EXHIBITIONS, SOUND DESIGN, AND PERFORMANCES

- 2016 *autonomous sense object*, Magnitudes group show, Art345 Gallery, Manhattan, NYC
- 2016 *BANDS WIDTH*, Home Exhibition, Pro Arts Gallery – Oakland, CA
- 2015 *Hive Form*, FLUX Art Fair, Corn Exchange Building –Harlem, NYC
- 2015 *HiveMind* (permanent), Pioneer Works Center for Art and Innovation – Red Hook, Brooklyn, NYC
- 2015 *Triadic Attractor*, Pioneer Works Center for Art and Innovation – Red Hook, Brooklyn, NYC
- 2015 *The Hour of the Star*, Connelly Theater – Sound Design. Lower East Side, NYC
- 2014 November - *SeismoDome*, multi-channel sound, Hayden Planetarium – American Museum of Natural History, NYC
- 2014 *Push-Pole*, installation – Columbia University Computer Music Center, NYC
- 2014 *My Orbital is Your Orbital*, for iPhones, sound performance – Central Park, NYC
- 2014 June – *Seismodome*, Hayden Planetarium – American Museum of Natural History, NYC
- 2014 *Under the Viaduct*, commissioned by West Harlem Art Fund, Riverside Park, NYC
- 2014 *Dice Roll*, Wallach Art Gallery, Columbia University – NYC
- 2014 *HamletMachine* Theater Production, Sound Design – Shapiro Theater, NYC
- 2014 Umbria Jazz Festival, Umbria, Italy
  - Sottobosco – Pisa, Italy
  - Cellar Theory – Naples, Italy
  - Un Tubo – Siena, Italy
- 2013 Casa Del Jazz, Rome, Italy

- 2012 *MetaWebern no.2 – Cryptograph: an exhibition for Alan Turing*, Spencer Museum of Art – University of Kansas
- 2012 *Mutatis Mutandis*, New Interfaces of Musical Expression (NIME), Ann Arbor, MI
- 2012 *Ex Wide* – Pisa, Italy  
 Cockney London Pub – Correzzola  
 Moroder – Ancona  
 Jazz Club Torino, Torino, Italy
- 2011 *Reflection/Projection*, Spencer Museum
- 2011 *Impulse Response* – Wonderfair Art Gallery – Lawrence, KS
- 2011 *Young Jazz Festival*, Foligno, Italy  
 TeatroC, Livorno, Italy  
 Notte Fiorentina, Florence, Italy
- 2010 *Awkward Encounters*, Great Plains Museum, Lincoln, NE
- 2009 *Maynooth Composition Symposium – “On Notational Interfaces for Free Jazz”*, Maynooth, Ireland
- 2008 *Feeniks*, Helsinki, Finland  
 Sibelius Academy, Helsinki, Finland
- 2008 *IAJE*, Lucerne, Switzerland
- 2008 *Katabami Quartet* - Gusman Center for the Performing Arts – Miami, FL

#### TECHNICAL SKILLS

PROGRAMMING Python, Java, Matlab, VHDL, Experience with C/C++, Assembly Language, PSPICE, Simulink

WEB HTML5, CSS, PHP, Javascript, JQUERY, WebAudioAPI

AUDIO Supercollider, Max/MSP/Jitter, RTCmix, Processing, Arduino, Logic Pro, Pro Tools, Ableton Live

SOFTWARE Adobe Photoshop, InDesign, and Illustrator, Microsoft Office Suite, VISIO

#### RELEVANT COURSEWORK

Signal and System Theory, Control Systems, Network Analysis, Digital Signal Processing,  
 Analog/Digital Electronics, Electromagnetics, C ++ Programming, Digital Logic Design

#### FABRICATION

EAGLE PCB Layout, Soldering and PCB, Wood and Metal Shop Fabrication, 3D Printing