

# Jonathan J. Michelson

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## EDUCATION

### Carnegie Mellon University

M.S. Music and Technology

Pittsburgh, PA

Aug. 2015 - Aug. 2017

**Selected Coursework:** Machine Learning, Advanced DSP, Data Compression, Sound Recording/Editing/Mastering

### Binghamton University, State University of New York

B.S. Electrical Engineering | Cum Laude

Binghamton, NY

Aug. 2011 - May 2015

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## SKILLS

**Programming/scripting:** Fluent: {Matlab, Octave, C}; Conversational: {Python}; Tourist: {bash, batch, TensorFlow}

**Software Tools:** git, LaTeX, CrossCore, Logic, Pro Tools, Audition, Audacity

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## PROFESSIONAL EXPERIENCE

### Electro-Harmonix / New Sensor Corporation

Queens, NY

*DSP Engineer*

Aug. 2017 - Present

- Award-winning *Oceans 11*: real-time reverbs and multi-FX; analog spring IR emulation; fixed-point Blackfin target
- Modernized and versioned 100k lines of company code with Git; maintenance of batch, C, Matlab DSP utilities
- Assist project lifecycle: product and UX design, development, testing, production, QA/QC, customer service

### Bose Corporation

Framingham, MA

*Applied Research Intern*

Sep. - Dec. 2016

- Designed psychoacoustic tests using Matlab/Simulink; augmented binaural tech for automotive clients: Mazda, Nissan
- Deployed experiments with bash-, Nodejs-, and MongoDB-based tools; analyzed crowdsourced listening data

### Pittsburgh Digital

Pittsburgh, PA

*Electrical Engineering Intern*

Jun. - Aug. 2016

- Detailed features of competitor's guitar pedals: reverse-engineered DSP algorithms, documented parameter ranges
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## RESEARCH

**J. Michelson**, T. Sullivan, and R. Stern. "Automatic guitar tablature transcription from audio using inharmonicity regression and bayesian classification". In *Audio Engineering Society Convention 145*, Oct 2018. [[link](#)]

L. You, J. J. Ahn, E. Hitz, **J. Michelson**, Y. Obeng and J. Kopanski, "Electromagnetic field test structure chip for back end of the line metrology," *Proceedings of the 2015 International Conference on Microelectronic Test Structures*, Tempe, AZ, 2015, pp. 235-239. [[link](#)]

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## PROJECTS

### Beatbox Recognition System | Pittsburgh, PA

Aug. - Sep. 2015

- Synthesized drum sequences from beatboxing audio excerpts: onset detection, LPC discrimination filters, WER = 0.0092

### Guitar Tube Amp Build | Binghamton, NY

Jan. - May 2015

- Researched vacuum tube amp design; modeled augmented schematic using SPICE; hand-wired completed build
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## LEADERSHIP

### Teaching Assistant: Intro to ECE | Pittsburgh, PA

Aug. 2015 - May 2016

- Instructed 30 undergrads in fundamentals course during weekly recitation sections, lab sessions, appointments, etc.
  - Average student feedback score for TA quality: 4.6/5.0 (survey form: <https://goo.gl/4ikAeJ>)
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## ADDITIONAL/VOLUNTEERING

**Home Studio** - Arranged/recorded/produced revenue-earning music in pastime: <https://soundcloud.com/jonmichelson>

**Backup Server** - Automated family computers' backups to remote RaspberryPi cloud: port-forwarding, DDNS, rsync, ssh

**Cycling** - Volunteer mechanic at local bike shop; raised \$600 for 50-mile charity ride benefitting National MS Society