Jonathan J. Michelson

jon.michelson93@gmail.com | www.jonathanmichelson.com

EDUCATION – FORMAL & CONTINUING

Carnegie Mellon University — Pittsburgh, PA
M.S. Music and Technology — Aug. 2015 - Aug. 2017
Selected Coursework: Machine Learning, Advanced DSP, Data Compression, Sound Recording/Editing/Mastering

Binghamton University, State University of New York — Binghamton, NY
B.S. Electrical Engineering | Cum Laude — Aug. 2011 - May 2015

deeplearning.ai — Brooklyn, NY
Specialization: TensorFlow in Practice — Oct. 2019 - Present

SKILLS

Programming/scripting/libraries: MATLAB, C, Python, bash, batch, NumPy, Keras, TensorFlow
Software/Web Tools: git**,** LaTeX, CrossCore, Jupyter, Jira, Trello, DAWs (Logic, Pro Tools, Audition, Audacity)
Languages: Beginner: Spanish, Cantonese, Mandarin

SELECTED PROFESSIONAL EXPERIENCE

Electro-Harmonix / New Sensor Corporation — Long Island City, NY
DSP Engineer — Aug. 2017 - Present
• Spearheaded development of real-time embedded audio products; ISR, SPI, DMA, JTAG, optimization, advanced DSP
• Introduced Git to engineering team workflow, versioned 100k lines of code; created batch, C, MATLAB, Python utilities
• Oversaw product and UX design, development, testing, production, QA/QC, customer service
• Delivered award-winning product: Gear of the Year [SOS], Premier Gear [PG], Editor's Pick [Guitar Player Magazine]

Bose Corporation — Framingham, MA
Applied Research Intern — Sep. - Dec. 2016
• Designed psychoacoustic tests in MATLAB/Simulink; augmented binaural tech for automotive clients: Mazda, Nissan
• Deployed experiments with bash-, Nodejs-, and MongoDB-based tools; analyzed crowdsourced listening data

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]

SELECTED MACHINE LEARNING PROJECTS

Movie Rating Recommendation System | Pittsburgh, PA — Jan. - May. 2016
• Coded matrix factorization in Python; evaluated on MovieLens dataset, RMSE <= 0.99

Deep Learning: Convolutional Neural Net | Pittsburgh, PA — Jan. - May. 2016
• Implemented Python version of LeNet-5 CNN architecture for MNIST classification

LPC Vocoder | Pittsburgh, PA — Aug. - Dec. 2015
• Created MATLAB-based speech vocoder using linear predictive coding filter coefficients

Adaptive Noise Cancellation | Pittsburgh, PA — Aug. - Dec. 2015
• Implemented noise-cancelling adaptive filter in MATLAB for use on corrupted voice recordings

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 $540 for 50-mile charity ride benefitting National MS Society