Sara Adkins

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web & git
saraadkins.com
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research interests
generative music, digital instrument design, machine learning for audio, embedded ML

programming
♥ C, C++, Python, SML, Assembly, Java, Objective-C

frameworks
Tensorflow, Pandas, SkLearn, CUDA, OpenMPI, OpenCV

software
Max MSP, PureData, MATLAB, ProTools, Logic Pro X, Unity

hardware
ESP32, Raspberry Pi, Teensy, HoloLens, Leap Motion, oscilloscopes, soldering

music
classical & folk guitar, viola, mandolin

organizations
Audio Engineering Society, Phi Kappa Phi, Sigma Alpha Iota

work experience

2019–2021 **Machine Learning Engineer, Bose Health** Boston, MA
Worked with research and production teams to integrate machine learning algorithms into prototypes and optimize them for production applications.
Optimized a speech enhancement deep learning model using a neural accelerator unit, enabling it to run in real time on an embedded device.
Technical lead for a research project developing generative and adaptive audio algorithms. Developed prototype experiences for user testing and presented recommended production requirements to stakeholders, resulting in the project's smooth transition from research to production.

2018-2019 **Software & DSP Engineer, Bose Consumer Electronics** Boston, MA
Designed signal chain for adjustable EQ feature released on NC700 headphones.
Developed an in-ear detection algorithm using a fusion of sensors that achieved over 97% accuracy in user research studies. Implemented the algorithm in firmware.

education

2021–2022 **Queen Mary University of London** London, UK
Master of Science in Sound & Music Computing

2014–2018 **Carnegie Mellon University** Pittsburgh, PA
Bachelors of Computer Science & Arts in Computer Science & Music Technology
University Honors, Intercollege Honors, Sound Design Minor. *GPA: 3.62/4.0*

honors & awards

2021 **US-UK Fulbright Postgraduate Award**
Fulbright grant for postgraduate studies at Queen Mary, University of London

2020 **Bose Trade Secret Award**
Invented a technique now considered a trade secret by Bose Corporation

2018 **Henry Armero Memorial Award for Inclusive Creativity**
Awarded by Carnegie Mellon faculty for creativity and innovation in computer science

publications & presentations

2020 **Patent Pending, "Non-linear breath entrainment," US20200215383A1**
Proposes an algorithm for modulating an auditory breathing stimulus based on biofeedback to induce sleep. Filed by Bose Corporation.

2019 **Hackaday Superconference Presenter, "Interactive Algorithmic Composition for Human and Machine Musicians"**
30-minute talk on designing intuitive generative music systems for live performances

2017-2018 **Senior Capstone, "Creating with the Machine: Algorithmic Composition for Live Performance"**
Designed and developed three interactive generative music systems that were premiered in concert by the CMU School of Music. Compositions were created using Python, Tensorflow, and Max MSP. Presented a technical overview at the Undergraduate Research Symposium.

2017 **World Haptics Conference, "Perceiving texture gradients on an electrostatic friction display"**
Paper presents experiment results on viability of using haptics to aid non-visual navigation on smartphones