Matthew C. Baron

US Citizen

CONTACT INFORMATION

10 St. Mary Rd
Cambridge, MA 02139

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EDUCATION

Carnegie Mellon University, Pittsburgh, PA USA

M.S. Electrical and Computer Engineering, (GPA 3.7/4.0) — August 2018

B.S. w/ Honors Electrical and Computer Engineering, (GPA 3.5/4.0) — May 2014

Double Major: Hispanic Studies

WORK EXPERIENCE

Pison, Boston, MA

Machine Learning Engineering Lead — February 2020 - Present

- Designed and supervised experiments for CNN gesture recognition, improving feature selection, training approaches, and classification topologies
- Developed trained model deployment scheme to reduce accuracy penalty for cross-subject model re-use
- Productionized new ML based electromyogram (ENG) gesture classification algorithm for mobile devices to meet tight contract specifications
- Set individual and team technical direction for four member ML team to promote research and development at a pace for successful contract delivery

Sonos, Boston, MA

Signal Processing Research Engineer — June 2019 - January 2020

- Investigated room acoustic simulation to augment training data for voice assistants
- Conducted demonstrations of prototype transducer array technologies

Affectiva, Boston, MA

Speech Scientist — November 2018 - April 2019

- Built multi-modal neural networks to detect stress for driver safety monitoring

Bose Automotive Systems, Framingham, MA

Applied Research Engineer — January 2017 - November 2018

- Developed psycho-acoustic models for non-linear optimization of array filters
- Advanced frequency domain filter design for multi-channel cross-talk cancellation

Acoustic Systems Engineer II — June 2015 - December 2016

- Constructed non-linear algorithms for audio image perception
- Prototyped headrest transducer array enabling individual listening environments

Acoustic Systems Engineer I — July 2014 - June 2015

- Generated tuning techniques for low transducer count audio systems

ACADEMIC PROJECTS

Master's Research, Conv Networks for Graph Signal Processing — May 2018 - August 2018

- Extended CNN to graph signals in high-dimensional data sets
  Advisor: Dr. José M.F. Moura

PATENTS AND PAPERS

C. Oswald, **M. Baron**, D. Tengleson, B. Subat "Vehicle Headrests" *Acoustic sub-assemblies of directional arrays for automotive audio systems implementing isolated listening zones*. U.S. No. 9706291. Jul. 2017.

Matthew Baron, "Topology and Prediction Focused Research on Graph Convolutional Neural Networks" *ArXiv e-prints*, arXiv:1808.07769 [stat.ML], 2018.

SKILLS

Spoken Language: Fluent Spanish, Technical Report Writing
Programming Languages: Julia, Python, MATLAB, LaTeX
Deep & Machine Learning Libraries: Keras, pytorch, Flux, TensorFlow, XGBoost

SERVICE

Cambridge Running Club, Cambridge, MA *Treasurer* — January 2016 - August 2017