Jason Cramer

jason.t.cramer@gmail.com | jtcramer | jtcramer

EDUCATION

NYU TANDON
PhD in Electrical Engineering
Aug 2017 - Present | Brooklyn, NY
GPA: 3.975

UC BERKELEY
B.S. in Electrical Engineering and Computer Sciences, Honors
EECS Honors Program - Music/Audio
Aug 2011 - May 2015 | Berkeley, CA
GPA: 3.798

SALESIANUM SCHOOL
High School Diploma
Aug 2007 - May 2011 | Wilmington, DE
GPA: 4.3

COURSEWORK

GRADUATE
Machine Learning & Artificial Intelligence
Machine Listening & MIR
3D Audio
Digital Signal Processing
Probability and Stochastic Processes
Statistical Signal Processing
Statistical Learning Theory

UNDERGRADUATE
Data Structures & Algorithms
Music Perception and Cognition
Computer Music
Compilers and Languages
Parallel Programming

SKILLS

DIGITAL SIGNAL PROCESSING
Wiener filtering • Noise suppression for speech enhancement systems

MACHINE LEARNING
Deep Learning • SVMs • NMF/PLCA • Markov models

PROGRAMMING
Python • Matlab • C • C++ • Scala • Java • HTML • LaTeX • JavaScript • UNIX Shell

MUSIC INFORMATION RETRIEVAL
Genre and mood classification• Source separation • Structural segmentation

MISC.
AWS • Visualization • Web applications

RESEARCH

MUSIC AUDIO RESEARCH LABORATORY
Juan Bello, Justin Salamon
Graduate Student Researcher
September 2017 - Present | New York, NY
As a part of the machine listening team of the SONYC project, investigating self-supervised learning of an effective deep audio embedding using the structure found in audio-visual correspondence as well as temporal relationships in acoustic sensor network data. As a part of the the BirdVox project, investigating utilization using hierarchical annotations and deep learning architectures for bird species classification in flight call recordings.

NVIDIA
Bryan Catanzaro, Rafael Valle, Ryan Prenger
Applied Deep Learning Research Intern
May 2018 - August 2018 | Santa Clara, CA
Investigated text-informed audio inpainting methods using text-to-speech inspired sequence-to-sequence models.

GRACENOTE APPLIED RESEARCH
Markus Cremer, Bob Coover
Audio Research Engineer
June 2015 – July 2017 | Emeryville, CA
Researched and developed machine learning models to perform classification of musical audio signals for tasks such as genre classification, vocal detection, and fingerprint query optimization.

CENTER FOR NEW MUSIC & AUDIO TECHNOLOGY
David Wessel, Edmund Campion
Undergraduate Researcher
August 2014 – May 2015 | Berkeley, CA
Worked with Prof. David Wessel, David Bourgin, and Rafael Valle to model musical sequences for the task of machine improvisation using an extension of author-topic modeling.

STATISTICAL LEARNING THEORY (COURSE)
Ben Recht
Student
October 2014 – December 2014 | Berkeley, CA
For class research project, developed an online algorithm for performing source separation of instruments in musical audio streams using an adaptation of PLCA.

MUSIC PERCEPTION AND COGNITION (COURSE)
David Wessel, Matthew Goodheart
Student
Oct 2014 – Dec 2014 | Berkeley, CA
For class research project, developed an online algorithm for performing source separation of instruments in musical audio streams using source-filter models, using the FAAST library.

VIDEO AND IMAGE PROCESSING LAB
Avideh Zahkor
Undergraduate Researcher
Sept 2013 – May 2014 | Berkeley, CA
Worked with Omar Oreifej and Prof. Avideh Zahkor to develop a visualization tool to demonstrate the utility of a indoor modeling device for energy auditing.

MISC. PROJECTS

BIRDVOXCLASSIFY
Open Source Software
Open-source bird flight call classification library.

SONYC-UST
Dataset
Dataset of audio clips from SONYC acoustic sensor network with multi-label noise source annotations.

OPENL3
Open Source Software
Open-source implementation of deep audio embedding models along with pre-trained models.

TIDEGAN
Class Project
A style transfer model for audio using cycle-consistent generative adversarial networks.

FORTISSIMO
Class Project
Music programming language for making simple programmatic music. Video here.

AWARDS & HONORS

2018 ECE MS Student Award
NYU Tandon
2017 Samuel Morse MS Fellowship
NYU Tandon
2016 Music/Auto Challenge
Gracenote 5.0 Hackathon
2015 Auto Podcast Challenge
Gracenote 4.0 Hackathon
2013 3rd Place
CSUA Hackathon
2013 3rd Place
Code 4 Cal Hackathon
2011 Edward Frank Kraft Award
UC Berkeley

SOCIETIES

2015 MIR @ Berkeley Cofounder
2012 C.S. Undergraduate Association Member
2012 Eta Kappa Nu Honor Society Member

PUBLICATIONS

M. Cartwright, J. Cramer, J. Salamon, and J. P. Bello, "**TriCycle: audio representation learning from sensor network data using self-supervision**," in *2019 IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)*, 2019.

J. Cramer, H.-H. Wu, J. Salamon, and J. B. Bello, "**Look, listen and learn more: design choices for deep audio embeddings**," in *2019 IEEE International Conference on Acoustics, Speech and Signal Processing*, ICASSP '19, 2019.

C. Summers, G. Tronel, J. Cramer, A. Vartakavi, and P. Popp, "**GNMID14: A Collection of 110 Million Global Music Identification Matches**," in *Proceedings of the 39th International ACM SIGIR Conference*, SIGIR '16, 2016.

O. Oreifej, J. Cramer, and A. Zakhor, "**Automatic Generation of 3D Thermal Maps of Building Interiors**," in *ASHRAE*, 2014.

PATENTS

M. Cremer, J. Cramer, P. Popp, and C. Summers, "**Responding to remote media classification queries using classifier models and context parameters**," July 6 2017. US Patent App. 15/185,616.

J. Cramer, M. Cremer, P. Popp, and C. Summers, "**Model-based media classification service using sensed media noise characteristics**," July 6 2017. US Patent App. 15/185,654.

INDUSTRY

NVIDIA
Applied Deep Learning Research Intern
May 2018 – August 2018 | Santa Clara, CA
Investigated audio inpainting methods using text-to-speech inspired sequence-to-sequence models.

GRACENOTE
Audio Research Engineer
June 2015 – July 2017 | Emeryville, CA
Researched and developed audio classifiers to describe attributes of music.

BLUE JEANS NETWORK
Media Software Engineering Intern
May 2014 – August 2014 | Mountain View, CA
Refactored and improved the WebRTC and Speex noise suppression modules.

TEACHING

INTRODUCTION TO MACHINE LEARNING (ECE-GY 6143)
Anna Choromanska
Teaching Assistant
September 2018 – December 2018 | NYU Tandon| Brooklyn, NY

PROBABILITY AND STOCHASTIC PROCESSES (EE 126)
Abhay Parekh
Undergraduate Student Instructor
January 2015 – May 2015 | UC Berkeley | Berkeley, CA

STRUCTURE AND INTERPRETATION OF SIGNALS AND SYSTEMS (EE 20N)
Babak Ayazifar
Undergraduate Student Instructor
August 2014 – December 2014 | UC Berkeley | Berkeley, CA