

# Jason Cramer

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## EDUCATION

### NYU TANDON

PHD IN ELECTRICAL ENGINEERING  
Aug 2017 - Present | Brooklyn, NY  
GPA: 3.967

### 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 •  $\text{\LaTeX}$  • 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 [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. Avidesh Zahkor](#) to develop a visualization tool to demonstrate the utility of a [indoor modeling device](#) for energy auditing.

## MISC. PROJECTS

### 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.

### MARKOV MIXER

#### DESIGNED LAB/PROJECT

A project starter kit for students to extend. Generates a real time DJ mix using a parameterizable Markov chain with transitions.

### 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 3<sup>rd</sup> Place  
CSUA Hackathon
- 2013 3<sup>rd</sup> 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

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.

### GUIDEWIRE

#### SOFTWARE ENGINEERING INTERN

June 2013 – August 2013 | Foster City, CA

## 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