JAMES GARDNER MOODY

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DATA SCIENTIST

Experience in data acquisition and data modeling, statistical analysis, machine learning, deep learning, and NLP. With a PhD in Mathematical Logic from UC Berkeley, I bring a strong background in formal methods which helps when developing new machine learning techniques. Having gone through the Flatiron Data Science Immersive, I'm well-versed with contemporary techniques in data science and have plenty of hands-on experience data wrangling. My passions include ethics and music.

TECHNICAL PROJECTS

InstrumentClassifier - https://github.com/jmsmdy/instrument-classifier
Uses machine learning to detect the instrument type from an audio sample

- Obtained instrument samples for training form University of Iowa Electronic Music Studios
- Feature engineered using spectral information using librosa
- Classified with 85% testing accuracy using XGBoost

AnalogMIDIMerge - https://github.com/jmsmdy/Analog-MIDI-Merge
Personal project working with embedded technology for the purpose of creating custom musical devices.

- Compiled relevant information from ATmega328 datasheet into a technical wiki
- Used low-level register manipulation to achieve high performance and low latency

SoundParse - https://github.com/jmsmdy/sound-parse
Neural-network-powered automated music transcription

- Created custom Tensorflow 2 code to achieve specialized neural architecture
- Achieved accurate transcription for multi-part marimba pieces

TECHNICAL SKILLS

Python (scikit-learn, matplotib, NumPy, Pandas, Tensorflow), C, C++, SQL,
Logic (computability theory, model theory, effective descriptive set theory, metric structures, modal logic),
Analysis (measure-theoretic probability, functional analysis), Algebra (universal algebra, group theory)

EMPLOYMENT HISTORY

Graduate Student Instructor / Researcher, **UC Berkeley**, Berkeley, CA 2013 - 2019

- Primary Instructor for Linear Algebra & Differential Equations (3 semesters)
- Teaching Assistant for Linear Algebra, Discrete Math, Calculus (8 semesters)
- **Dissertation:** Computable Continuous Structure Theory
  Abstract: Developed a new area of computable structure theory based on continuous logic, which allows intermediate truth values in the real interval [0,1]. These new techniques can be used to study the intrinsic complexity of well-behaved separable structures of size continuum, such as the p-adic integers and separable Hilbert spaces.

EDUCATION

Flatiron School, New York, NY 2020
Immersive Data Science Bootcamp program

UC Berkeley, Berkeley, CA 2019
Ph.D. in Logic

New York University, New York, NY 2013
B.A. in Mathematics with Honors
B.A. in Philosophy