

Matthew Retchin

3041, 70 Morningside Drive, New York, NY 10027
matthew.retschin@columbia.edu | mhr.github.io | 804.339.7760

EDUCATION

Columbia University, Columbia College

New York, NY

B.A., Computer Science

May 2020

- **GPA:** 3.50/4.00
- **Honors:** Dean's List (Spring 2017), Hult Prize Regional Finalist
- **Coursework:** Object-Oriented Design, Data Structures, Unix Programming with C/C++

Columbus Academy

Columbus, OH

- **GPA:** 4.08/4.00
- **Coursework:** Advanced Topics in Computer Science, Data Structures, Mathematical Modeling, Linear Algebra

TECHNICAL SKILLS

Java, C/C++, Python (Pandas, Matplotlib, NumPy, Scikit-Learn, Keras), JavaScript/Node.js, Bash, SQL, HTML, CSS, MS Office (Word, Excel, PowerPoint)

EXPERIENCE

MIT Department of Brain and Cognitive Sciences - Speech Recognition

Boston, MA

Machine Learning Intern

Jul 2017 – Present

- Analyzed 400,000+ audio samples to identify and characterize the dynamics of neurotypical monkey socialization and autistic monkey socialization
- Implemented algorithms for statistical analysis, speech recognition, multi-microphone speech alignment, and an ETL pipeline using TensorFlow, SciPy, and the HDF5 serialization format
- Developing novel algorithm to extract the salient 20% of data from hundreds of hours of monkey-to-monkey audio, optimizing the data collection process by 80%

DeepMine – Computational Genomics Project

New York, NY

Creator

Aug. 2014 – Present

- Achieved record 78% accuracy by developing machine learning algorithm to identify microRNA-mRNA associations
- Constructed web front end database (www.deepmine.org) to accelerate development of miRNA-based therapies
- Awarded Best-of-Category (overall top 20 of 1300+ projects, 70+ countries) at 2015 Intel International Science and Engineering Fair, the world's largest international science fair

Robot Academy – Robotics Camp

Columbus, OH

Programming Education Manager

Jul. 2016 – Jul. 2016

- Conducted robotics challenges in a camp with 1000+ young students in the Columbus area
- Instructed students problem-solving and technical skills by helping them to design, build, and program working robots, helping hundreds of kids graduate from the summer program
- Led a mock Shark Tank simulation, inspiring students to innovate and become entrepreneurs

PROJECTS

Salaam – Civic Tech Social Enterprise

New York, NY

Co-Founder

Jan. 2017 – Present

- Used Twilio, Google Translate, and Google Maps APIs in Python to provide a free, automated SMS service for Syrian refugees in Germany
- Developed first automated German-to-Arabic phonetic transliteration algorithm
- Regional finalist (top 300 of 50,000+ applicants) for the Boston Hult Prize, the world's largest entrepreneurship competition sponsored by the Clinton Global Initiative

Deafinition

New York, NY

Creator

Feb. 2017 – May, 2017

- Created an augmented reality app for deaf people that draws speech bubbles next to faces using speech transcription and facial recognition, potentially improving communication for over 1,000,000+ deaf individuals
- Implemented with Python bindings for OpenCV

INTERESTS

Electric Guitar, Writing Short Stories, Piano, Intermediate Spanish