Brandon Dominique

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My work focuses on creating machine learning and artificial intelligence algorithms that are fair and safe for all to use. I am particularly interested in studying how practices from law, philosophy and humanities can influence machine learning techniques for social good.

EDUCATION

Northeastern University, Boston, MA — Sept 2020 -
Ph.D. Computer Engineering
Advisor: Jennifer Dy

New Jersey Institute of Technology, Newark, NJ — Sept 2016-May 2020
B.S. Computer Engineering, *Magna Cum Laude* — GPA 3.63/4.00

FELLOWSHIPS, AWARDS, AND HONORS

GEM Fellowship — August 2021
Dean's List — All Semesters
NEU Tuition Scholarship — All Semesters
LSAMP STARS Fellowship — August 2020
NSF ACM Tapia Scholar — February 2019
Black in AI Travel Grant, AAAI '20 — August 2021

SELECTED EXPERIENCE

IBM, *Research Intern* — May 2021-Aug 2023
Advisors: Lorraine Herger, Kaoutar El Maghraoui, David Piorkowski

- Worked with the AI Hardware Center to develop FactSheets, a method of Documentation designed to increase transparency of AI models
- Created and ran User Studies to learn the different Documentation Needs of researchers at IBM
- Evaluated the overall effectiveness of FactSheets with a UX Survey
- Used Javascript, HTML and CSS to create a website to display the FactSheets that I completed

University of Arizona, *Undergraduate Research Intern* — June 2019-Aug 2019
Advisors: Noel Hagos Teku, Rahul Bhadani, Tamal Bose

- Created a Python Package designed to simulate the decision process of a Cognitive Radio for the U of A's Cognitive and Autonomous Test (CAT) Vehicle

- Conducted research with U of A Graduate Students on current methods of signal transmission in Autonomous Vehicles
- Used the Reinforcement Learning Algorithms Upper Confidence Bound and Epsilon Greedy to create a Cognitive Radio agent capable of sending/receiving a modulated signal
- Acquired a deep knowledge of Python and its applications in Reinforcement Learning

University of Southern California, *Undergraduate Research Intern* June 2018-Aug 2018
Advisor: David Traum

- Compiled an interactive model of a local musician using existing USC software and pre-recorded interview clips
- Improved the accuracy of the model through increasing the number and types of questions asked
- Edited the audio and video of the pre-recorded clips to make the model more realistic

SKILLS AND COURSES TAKEN

- **Programming Languages:** Strong with Python, C++, SQL. Familiar with Tensorflow/Google CoLabs, Javascript, CSS, HTML, MATLAB, R, and Assembly
- **Completed (or currently taking) Courses in:** Basic and Advanced Machine Learning, Numerical Optimization, Algorithms and Data Structures, Linear Algebra and Linear Systems Analysis, Basic and Advanced Probability & Statistics

PROJECTS (More information about these and other projects can be found on my github)

- Created a Feature Selection Algorithm that uses Kernels to diminish the impact of unfair features during classification
- Learned the Fundamentals of Probability in Machine Learning through the implementation and Analysis of Algorithms such as Expected Risk Minimization, Maximum Likelihood and Max A Posteriori Parameter Estimation
- Used Sci-kit Learn to perform Unsupervised Machine Learning on a Sports Analytics dataset I created from scratch
- Created a Library Database in SQL with a Python frontend
- Created an Asteroids game in C++ that can be trained by a Reinforcement Learning Agent to play with no human input

LEADERSHIP, MENTORSHIP AND SERVICE

Mechanism Design for Social Good, *Member* October 2020-May 2021
An interdisciplinary research initiative that includes workshops, colloquiums, and partnerships with NGO's and think tanks on the topics of inequality, development, online markets and social good.

Bob Case Academy: Bridge to Calculus Data Camp, *Volunteer* April 19-23, 2021
Workshop leader. Organized Data Science activities related to Climate Change which introduced fundamental data analysis and visualization techniques.

National Society of Black Engineers (NSBE), *Chapter President* Sept 2019-May 2020
Managed and Aided the Executive Board of the NJIT Chapter of NSBE in planning events for the year, as well as creating programs aimed at High Schoolers and new Undergraduates.

LSAMP Cross Campus Peer Mentoring Program, *Mentor* Sept 2019-May 2020
Held weekly phone calls with a group of 5 mentees and advised them as they prepared to move from a local community college to a 4-year university.

NJIT EOP Undergraduate Mentoring Program, *Mentor* Sept 2019-May 2020
Held bi-weekly meetings with a group of 5 mentees and aided them during their freshman year at NJIT.