Aaron Dharna

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EDUCATION

NEW JERSEY INSTITUTE OF TECHNOLOGY
PhD Student
2020 - Ongoing | Newark, NJ

NEW YORK UNIVERSITY
Tandon School of Engineering
Visiting Academic

FORDHAM UNIVERSITY
MS: Computer Science
May 2020 | New York, NY
Magna Cum Laude
GPA: 3.93 / 4.0

FORDHAM UNIVERSITY
BS: Mathematics
May 2016 | New York, NY

LINKS

Website: aadharna.github.io
Github: aadharna
LinkedIn: aadharna
Twitter: @_aadharna

COURSEWORK

Machine Learning
Reinforcement Learning
Deep Learning
Convex Optimization
Data Structures and Algorithms
Artificial Intelligence
Big Data Programming
Big Data Algorithms
Data Visualization
Calculus I-IV
Linear Algebra
Probability
Differential Geometry
Differential Equations
Analysis (Real + Complex)

SKILLS

PROGRAMMING
Shell • Python • LaTeX
• PyTorch • TensorFlow • C++
• Hadoop • Spark • Scala • SQL

EXPERIENCE AND RESEARCH

NYU GAME INNOVATION LAB | Machine Learning Researcher
Aug 2019 - Present | New York, NY

- Endlessly generate new agents/learning-environment pairs such that agents easily adapt to new environments by combining evolutionary algorithms, neural networks, optimization, reinforcement learning, and transfer learning. See publication [2].

SCHRIER COMPUTATIONAL CHEMISTRY LAB | Research intern
May 2019 – Aug 2020 | New York, NY

- Software engineering for DARPA-SD2E ESCALATE, a laboratory automation tool built to enable machine-learning aided experiment specification.
- Explored novel applications of machine learning methods to materials discovery problems. See publication [1].

FORDHAM UNIVERSITY | Teaching Assistant
Aug 2019 – Jan 2020 | New York, NY

- Natural Language Processing, Deep Learning
- Tutor students in course material; hold office hours once per week; code review

INSTRUMENTAL INC | Machine Learning Engineer intern
June 2018 - Aug 2018 | Palo Alto, CA

- Created and adapted metrics around manufacturing-focused anomaly detection in image processing
- Researched machine learning algorithm improvements by finding, reading, and implementing academic papers
- Tested and integrated a new probabilistic algorithm into Instrumental's ML Stack that improved accuracy

NTOPOLOGY | Software Engineer Co-op
Oct 2017 - March 2018 | New York, NY

- Ported, cleaned-up, improved, and optimized mathematical C++ code from Element 1.0
- Created new internal-facing debug and external-facing design tools speeding-up testing and asset creation. Developed data-driven design and modeling tools
- Interfaced between the mathematical kernel team and the design team

SCHOOL DISTRICT OF CLAYTON | Substitute Teacher
Aug 2016 - May 2017 | St. Louis, MO

- Refer to the lesson plan left by lead teacher and work with students to help solidify new concepts
- Manage classroom order by encouraging task adherence and appropriate classroom behavior

PUBLICATIONS

[1] I. M. Pendleton, M. K. Caucci, M. Tynes, **Aaron Dharna**, M. A. N. Nellikkal, Z. Li, E. M. Chan, A. J. Norquist, and J. Schrier. Can machines "learn" halide perovskite crystal formation without accurate physicochemical features? *The Journal of Physical Chemistry C*, June 2020.

[2] **Aaron Dharna**, J. Togelius, and L. B. Soros. Co-generation of game levels and game-playing agents, 2020.