Adam Catto

Email : agocatto@gmail.com
github.com/adamcatto
linkedin.com/in/adamcatto/

Education

- **The Graduate Center, City University of New York** — New York, NY
  Master of Science in Data Science – Department of Computer Science — *2020 – 2022 (Expected)*
  - **GPA**: 3.90/4.00
  - **Relevant Graduate Courses**: Machine Learning (B+), Artificial Intelligence (A+), Computational Biology (A), Digital Image Processing (A), Seminar in Machine Learning & AI for Bioinformatics: Deep Learning for Genomics (A+), Big Data Analytics (A), Capstone Master's Thesis (A), Data Visualization (A-), Data Mining (A+)

- **Stony Brook University** — Stony Brook, NY
  Bachelor of Science in Applied Mathematics & Statistics and Philosophy (Honors) — *2015-2019*
  - **Relevant Courses**: Operations Research, Data Analysis, Linear Algebra, Multivariable Calculus, Differential Equations, Advanced Symbolic Logic, Graph Theory, Combinatorics, Abstract Algebra, Formal Semantics, Introduction to Computational Linguistics & NLP

Research Experience

- **Icahn School of Medicine at Mount Sinai** — New York, NY
  Data Scientist, Nash Family Department of Neuroscience, Friedman Brain Institute — *Jun 2022-Present*
  - **Machine Learning Research & Engineering**: Machine learning research for bioinformatics applications.

- **Janssen R&D, Johnson & Johnson** — Cambridge, MA (Remote)
  Research Data Science Intern, Clinical Insights — *Jun 2021-Oct 2021*
  - **Digital Biomarker Identification**: Working under the supervision of Dr. Meenakshi Chatterjee on the Clinical Insights team to identify digital biomarkers of activity and sleep in immune-mediated inflammatory diseases from accelerometer data.

- **Research Foundation of CUNY** — New York, NY
  Graduate Research Assistant – Distributed Artificial Intelligence Laboratory — *Aug 2020 - Present*
  - **Machine Learning for Clinical Decision-Making**: Working under the supervision of Professor Anita Raja on prediction of maternal and fetal outcomes and optimizing obstetric test scheduling. Designed and implemented a novel machine learning model transfer algorithm for classification and regression tasks with large amounts of missing data and class imbalance, which vastly improves sensitivity.

- **Stony Brook University** — Stony Brook, NY
  Teaching Assistant and Undergraduate Researcher — *Aug 2017 - May 2019*
  - **Undergraduate Researcher – Computer Science & Philosophy**: Projects included developing a method for splicing elementary topoi, sketching a formalism for philosophical systems/worldviews, and creating a computational representation of Tegmark's multiverse hierarchy (resulted in a conference paper/presentation at the 2017 Logic, Relativity, and Beyond conference)
  - **Teaching Assistant**: Graded, taught recitation sections, and gave guest lectures for courses CSE 215 (Foundations of Computer Science), CSE 371 (Logic), PHI 108 (Introduction to Logical and Critical Reasoning), and PHI 220 (Symbolic Logic).

Skills, Awards, Honors

- **Programming**: Python, MATLAB, R, Shell Scripting
- **Machine Learning / Data Science**: TensorFlow, Keras, PyTorch, Scikit-Learn, NumPy, Pandas, OpenCV, PyTorch-Geometric, BioPython PDB
- **Misc**: Bash/Zsh, UNIX, HTML5, CSS, LaTeX, Jupyter
- **Awards & Honors**:
  - Winner, NICHD Decoding Matenal Morbidity Data Challenge — *2021*

- Stony Brook University URECA Summer Research Grant *2018*
- IBM Thomas J. Watson Memorial Scholar *2015 - 2019*
- Quora Top Writer & Top Question Writer *2017 - 2018*
- Stony Brook University Presidential Scholar *2015 - 2019*

Theses

1. Catto, A. (2021). Hierarchical Model Transfer Methods for Ensemble Learning with Large Amounts of Missing Data. **Master's Thesis**, Data Science M.S. Program, CUNY Graduate Center Department of Computer Science.

2. Catto, A. (2019). The Category of Worldviews: Computational Tools for Structuring and Assessing Philosophical and Ideological Systems of Thought. **Undergraduate Honors Thesis**, Stony Brook University Department of Philosophy.

Publications, Preprints, & Technical Reports

1. Goretsky, A., Dmitrienko, A., Tang, I., Lari, N., Kunhardt, O., Khan, R. R., ... & Gyamfi-Bannerman, C. (2021). Data Preparation of the nuMoM2b Dataset. medRxiv.

Posters and Conference Talks

1. Catto, A. (2018). Novel Methods for Splicing Topoi via Semantic Fibering Techniques. Stony Brook University Undergraduate Research & Creative Activities Symposium.

2. Catto, A. (2017). Towards a Formal Theory of Digital Physics: Digital Multiverses. Logic, Relativity, and Beyond 3rd International Conference.

Projects

- **Deep Learning on Protein Surfaces**: Implemented a system to learn representations of 3D-surface data extracted from Protein Data Bank files and perform ligand binding site prediction, using PyTorch-Geometric. github.com/adamcatto/prosudi
- **Computer Vision and Image Processing for Intelligent Transportation Systems**: Built an efficient prior- and motion-based image processing architecture for real-time multi-object tracking in noisy tunnel traffic camera video feeds. Also developed an image processing library from scratch in Python. github.com/adamcatto/dippy