

# Charles Bloomberg

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📍 New York City, United States   ✉ charlesbloomberg@wisc.edu   ☎ (621) 799-5548   🔗 in/bloomberg

## SUMMARY

Data Scientist / Machine Learning Engineer proficient in generative modeling, classification, prediction, and data processing. Capable of creating, developing, testing, and deploying machine learning models for numerous problem domains. Has demonstrated these abilities on several projects across several data science teams.

## EXPERIENCE

### Machine Learning Research Lead | Trailex | New York, NY | June 2021 - Present

- Led a research team solving major bulk US power grid problems using real, large-scale Synchrophasor data.
- Created a model to generate realistic synthetic anomaly data increasing data availability by at least 200% and a model to classify anomaly signatures achieving an F1 score of 97%.
- Created a system that automatically identified and categorized unprecedented anomaly labels with 96% accuracy.
- Created an online method to replace missing values during volatile anomalies while keeping errors 10%.
- Created two methods (for two use cases) to detect the start of an anomaly. Both methods achieve F1 scores of at least 95%.

### Machine Learning Researcher | Coinbase | New York, NY | June 2020 - June 2021

- Created a model for topology classification and monitoring achieving 97% Accuracy from training on just 5% of the data.
- Developed a method to detect electricity fraud which increases detection rates by a factor of 20.
- Developed a model to predict the deaths of power equipment increasing the proportion of correct identifications by 700%.
- Performed detailed financial optimization of battery storage systems via their participation in Wholesale Power Markets.
- Performed battery storage degradation Modelling and optimization in power markets under degradation and managed a database of smart meter data on a Hadoop cluster.

### Photonics Researcher | Photo.ai | New York, NY | June 2019 - June 2020

- Performed simulations and optimizations to design multijunction solar cells, increasing efficiencies by 46%.
- Experimentally tested the power curves of 20 fabricated solar cells and performed wet-etching of multijunction solar cells in a cleanroom environment.

## EDUCATION

**Doctorate of Philosophy in Electrical Engineering | New York University | 4.0 | New York, NY | 2019**

**Bachelors of Science in Electrical Engineering | New York University | 3.96 | New York, NY | 2015**

## SKILLS

Languages: Python, SQL, Julia, MatLab, C++, C#

Tools: PyTorch, Tensorflow, Keras, Matplotlib, SkLearn, SciPy, Pandas, Jupyter Notebook, BigQuery, Google Cloud Platform, Hadoop, NumPy, Seaborn, Airflow, Docker, Kubernetes

Hard Skills: Information Theory, Statistics, Machine Learning Theory

Soft Skills: Technical Writing, Presentation Skills, Communication Skills, Leadership, Mentoring