Luke Solo

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EDUCATION

The University of Chicago June 2025

Bachelor of Science in Computational and Applied Mathematics

GPA: 3.95/4.00

Awards:

Dean's List (Years 1-3),
Summa Cum Laude,
Enrico Fermi Scholar in the Physical Sciences

EXPERIENCE

Lexidyne LLC 2018 - 2023

Senior Analyst and Project Manager

- Developed a broad scope suite of machine learning solutions for various clients and clinical applications. Notable models include a forward feed neural network with ADAM optimization, an LSTM, and the production of a custom-built gradient boosted decision tree model that synthesized a number of cutting edge concepts.
- The proprietary GBDT model that I created alone then refined by leading a team outperforms industry standard models such as CatBoost and XGBoost on project datasets

Cardio-informatics Research Lab

Machine Learning Specialist and Project Manager Summer 2024

- Acted as a machine learning analyst that produced novel insights on the cardiovascular disease risk of specific populations
- After being promoted to team lead, I coordinated data collection, feature engineering, model training, and post model analysis to generate research insights

PROJECTS

Virtual Reality QoE Metric Data via Packets (Python) Fall 2023

- Created a full data pipeline that transforms packet captures of a user running a VR game into tractable data. We then analyzed this data by various machine learning models until an optimal model was selected. The final model was able to extrapolate a number of user quality of experience metrics in real time with a high degree of accuracy.

Molecular Dynamics Protein Analysis Winter 2023

- Wrote molecular dynamics scripts predicting the behavior of rat alpha-parvalbumin under a mutation that removes a hydrogen bridge from the molecule. These scripts were then ran on a supercomputer and the results were studied to analyze how this hydrogen bridge helps maintains the form and function of the protein

Genetic Variants of Interest Analysis Fall 2022

- Wrote scripts to perform sequence alignment and a variants of interest analysis on an example human genome

LexBoost Summer 2023

- Created a custom built machine learning model that integrated a number of novel and cutting edge optimization techniques, allowing it to outperform industry standard models.

SKILLS

Proficient in Python (pandas, matplotlib, numpy, pytorch, sklearn, catboost, xgboost), rigorous statistical and mathematical proof, Java, C, LaTeX, capturing and cleaning network data (Wireshark) -- Microsoft Word, Excel, and PowerPoint.

NOTABLE COURSEWORK

Honors Theory of Algorithms and *Honors Combinatorics* with Lazslo Babai, *Honors Discrete Mathematics* with Alexander Razborov, *Markov Chains, Martingales, and Brownian Motion* with Greg Lawler, *Mathematical Foundations of Machine Learning* with Michael Maire, *Optimization* with Cong Ma