Dimitri Lopez

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Software engineer, researcher in complex systems, data scientist.

Technical Skills

Experience:

- 3+ years of data science
- 2 years statistics
- 1 year software engineer
- 6+ years of programming
- 5+ years of research
- 4+ years of Emacs

Programming Languages: Python, JS, Java, SQL, R, Bash, HTML, C, C++, MATLAB, Lisp

Frameworks: Pandas, NumPy, Snowflake, SciPy, PyTorch, Matplotlib, Seaborn, scikit-learn, NetworkX, AWS, Git, LaTeX, Emacs, Vi

Skills: Software engineering, Data / Statistical / Mathematical analysis, data visualization, numerical methods, literature review

Education

Northeastern University **Starting September 2025 - Expected 2029**

PhD in Network Science as a part of the Network Science Institute. *Advised by Michael Johansson*

Rensselaer Polytechnic Institute **August 2023 - August 2024**

Master of Science in Computer Science (Machine Learning / Data Science Concentration) *4.0 / 4.0 GPA*

- Machine Learning
- Reinforcement Learning
- Computer Vision
- Graph Mining
- Stochastic Modelling
- Optimization
- Computational Math
- Network Science

Rensselaer Polytechnic Institute **September 2020 – December 2023**

Bachelor of Science in Computer Science and Mathematics *3.80 / 4.0 GPA*

- Principles of Software
- Linear Algebra
- Programming Languages
- Graph Theory
- Algorithms
- Discrete Mathematics
- Proof Writing
- Cognitive Science

Experience

Rensselaer Polytechnic Institute **May 2022 – December 2024**

Graduate Researcher under Jianxi Gao and Lu Zhong *Troy, New York*

- National COVID-19 healthcare research published by Nature Medicine quantifying healthcare resilience and adaptability during successive disruptions. A novel mathematical framework was developed and applied to hundreds of millions of healthcare records identifying faltering healthcare systems and services. Provided strategies to boost resilience and adaptivity - potentially saving countless lives and improving treatment for tens of millions of people.
- Found novel metrics for city efficiency through analyzing terrabytes worth of human mobility records on resource acquisition within the largest metropolitan areas in the United States.

Amazon.com **May 2023 – August 2023**

Software Development Engineer Intern *Seattle, Washington*

- Decreased time to debug problems for senior engineers from days down to hours. This was done by creating a suite of debugging tools providing tracing, logging, and virtual environments for replaying customer orders through a 15+ year old code base (Java).
- As part of the ordering team, we maintained the data model responsible for storing and loading all customer orders to disk for the world's largest ecommerce company (peak traffic reaching 100,000 orders per minute).

Amazon Web Services **August 2022 – December 2022**

Software Development Engineer Intern *New York, New York*

- Developed real-time analytics on AWS's load testing solution, Distributed Load Testing, enabling users to monitor load test progress and the number of available resources in real time.
- Full scale feature planning and full stack development using React, Typescript, and AWS cloud services.

Los Alamos National Laboratory **May 2021 - August 2021**

Undergraduate Intern for the Applied Computer Science Group *Los Alamos, New Mexico*

- I developed a suite of simulations for the Nvidia group with the goal of benchmarking the Nvidia cuNumeric Legate library — a drop-in parallel computing replacement for NumPy.
- Developed 10,000+ line codebase featuring fluid simulations, numerical method on physics problems, disease spread, emergent properties in complex systems, and more.

Los Alamos National Laboratory **May 2019 - September 2020**

Undergraduate Intern for the Statistical Sciences Group *Los Alamos, New Mexico*

- Pioneered novel statistical methods for analyzing and visualizing large scale data generated by exascale systems (super computers).
- Improved career growth forecasting techniques for all LANL positions through statistical analyses and Markov chain modeling.

Publications / Awards

Healthcare system resilience and adaptability to pandemic disruptions in the United States. *Nature Medicine* (2024). Co-first author.

1st Place RPI Datathon 2021: Data science competition demonstrating the impacts of telehealth on the future of medicine.

Best Podium Presentation and 2nd Place Poster: RPI's 9th Annual Graduate Research Symposium

J. Robert Oppenheimer Scholarship 2020: For greatest promise in the mathematical sciences.

Rensselaer Medalist: $120k scholarship awarded to the top STEM student at Los Alamos High School.