# Tim Hopper

Experienced machine learning engineer and Python developer

**Experience** 

#### Varo Bank

Sr. Staff Software Engineer, Machine Learning, March 2024 - present Staff Software Engineer, Machine Learning, December 2021 - March 2024

- Develop machine learning platform for fraud detection, risk mitigation, lending, and marketing
- Lead development of batch feature store using Tecton, enabling democratized feature creation and discovery
- Guide team in implementing engineering best practices

### DTN

### Data Science Architect, August 2020 – December 2021

- Built and maintained data science infrastructure with AWS and CloudFormation
- Enabled machine learning product development by building tools and platforms for data scientists
- Trained and mentored data scientists in Python tooling and software engineering practice
- Strategized and led the development of AWS infrastructure for big data usability and accessibility

#### Blackberry | Cylance Senior Data Scientist, Nov 2017 – May 2020

- Led development of feature store using serverless AWS infrastructure
- Developed and maintained Python packages for data ingestion, cleaning, and standardization
- Guided data science team in best practices for Python development and software testing
- Researched machine learning techniques for dynamic detection of malware

Distil Networks
Data Scientist, Oct 2015 – Nov 2017

- Led research for validation of JavaScript-based client fingerprinting technique
- Constructed hierarchical Bayesian models for analysis of internet user behavior
- Lead development of real-time identification platform for malicious web bots on Apache Storm
- Introduced team to best practices in Python development and data analysis

#### Qadium

Data Scientist, Feb 2015 - Oct 2015

- Built **open-source tools** in C++ and Python for topic modeling and inference on nonparametric Bayesian models
- Wrote instructional material for inference on nonparametric Bayesian models in with IPython notebooks
- Maintained continuous integration with Travis-CI and automated deployment to Anaconda.org

### Parse.ly Software Engineer, Jan 2014 – Feb 2015

- Developed algorithms in Python for aggregation of large-scale, streaming, time-series data
- Built and maintained lambda architecture on AWS using Storm, Elasticsearch, Redis, and Cassandra
- Contributed to streamparse, an open-source library for real-time stream processing in Python

RTI International Data Scientist, Oct 2012 – Jan 2014

- Provided analytics and computational support for one of the nation's leading nonprofit research institutions
- Contributed to projects on social media analysis for public health, environmental GIS modeling, nonlinear mixed effect modeling, and text-mining-based crime forecasting

## Education

2010-2012	Master of Operations Research; North Carolina State University, Raleigh, NC
	Research area: Reinforcement learning methods for healthcare operations
	Instructor: Calculus 2
2009-2010	PhD Student in Mathematics; University of Virginia, Charlottesville, VA
	No degree received
	Instructor: Calculus 1 and Calculus 2
2004-2008	BS, Mathematics; Grove City College, Grove City, PA
	Minor in Applied Physics; Minor in Computer Science; Summa Cum Laude

# **Technical Experience**

TechnicalI have an experience with a breadth of tools for machine learning, software develop-<br/>ment, and backend engineering.

- Programming Languages (high proficiency): Python
- **Programming Languages (some proficiency):** C++, Go, C#, Mathematica, R, SQL, Java, Javascript
- Machine Learning Tools: Scikit-Learn, PyTorch, MLFlow
- Cloud Services: Amazon Web Services (Batch, Lambda, ECS, S3, SQS, Glue)
- Infrastructure and Configuration Tools: Terraform, Cloud Formation, Ansible, Saltstack

Open source<br/>contributionsContributor to a variety of Python libraries, includingcontributionscpython · datamicroscopes · Streamparse · Conda · Ida · Pandas

# Personal Projects

- pydevtools.com: Ebook on Python developer tooling
- pythonplot.com: A Rosetta Stone of Python plotting libraries for exploratory data analysis
- Notes on Dirichlet Processes: Notes on Dirichlet processes for nonparametric Bayesian methods
- Into the Hopper: Podcast about machine learning and software engineering