

# Rohan Thavarajah

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## EDUCATION

### Harvard University

*Master of Science in Computational Science and Engineering, GPA 3.97*

Cambridge, MA

May 2018

- **Thesis:** Crowdsourcing with Evolving Annotators. A Bayesian model for combining the votes of annotators of time-variant skill to improve label quality (**PyMC3**).
- **Teaching Fellow:** Data Science, Stochastic Inference and Optimization

### Columbia University

*Bachelor of Arts in Economics and Mathematics, Departmental Honors*

New York, NY

May 2011

## EXPERIENCE

### Combocurve Inc

*Optimization Specialist*

Boston, MA

September 2022–Present

- Built an optimization engine for scheduling drilling operations subject to resource constraints using CP-SAT, simulated annealing and genetic algorithms (**ORTools**).
- Integrated the engine into a **MERN** stack SaaS application, achieving scalability by distributing work across a python server, cloud functions and elastic compute (**Google Cloud Platform**).
- Met performance requirements on an NP-hard problem through problem decomposition and smart initialization. Devised a “sticky” matrix multiplication that yielded a ~1000x speedup, reducing runtime from 957ms to 989ms.

### Quantum Reservoir Impact Group

*Machine Learning Specialist / Product Manager*

Cambridge, MA

June 2018–September 2022

- Lead machine learning engineer and product manager for SpeedWise ML, a SaaS platform for no-code machine learning and predictive analytics (**MERN, AWS**).
- Researched ConvLSTM proxy models for subsurface fluid dynamics in porous media (**PyTorch**).
- Built a framework for probabilistic timeseries forecasting using Transformers, DeepAR and LSTMs (**PyTorch, PyTorch-Forecasting**).

### Octane Lending

*Data Science Intern*

New York, NY

June 2016–August 2016

- Implemented a suite of classification models to gauge the riskiness of potential borrowers (**sklearn**).

### Harvard Business School

*Research Associate*

Cambridge, MA

January 2013–June 2016

- Provided statistical programming assistance on a variety of quantitative research projects (**STATA**).

## PUBLICATIONS

1. Thavarajah, Rohan, Xiang Zhai, Zheren Ma, and David Castineira. “**Fast Modeling and Understanding Fluid Dynamics Systems with Encoder–Decoder Networks.**” *Machine Learning: Science and Technology* 2, no. 2 (March 2021): 025022. <https://doi.org/10.1088/2632-2153/abd1cf>.
2. Thavarajah, Rohan, Hamed Darabi, Nick Ruta, Amir Salehi, and Amir Kianinejad. “**A Deep Learning Framework for Multi-Horizon Probabilistic Production Forecasting in Unconventional Reservoirs.**” In *Unconventional Resources Technology Conference, 2022 June 2022*, 2678–89. SEG Global Meeting Abstracts. URTEC, 2022. <https://doi.org/10.15530/urtec-2022-3723682>.

## SKILLS & INTERESTS

**Data Science:** Python (PyTorch, PyMC3, ORTools, sklearn, pandas, Numpy, SciPy), SQL, R

**Software Engineering:** AWS (EC2, Lambda, SQS), GCP (Compute Engine, Cloud Run), MongoDB, NodeJS, React, git