# Rohan Thavarajah

https://rohanthavarajah.github.io/homepage   www.linkedin.com/in/rohan-thavarajah-861756a3
Boston, MA   1-618-534-9019   rohan.thavarajah@gmail.com

## EDUCATION

**Harvard University**                                                                            **Cambridge, MA**
*Master of Science in Computational Science and Engineering, GPA 3.97*                       *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 11Science, Stochastic Inference and Optimization

**Columbia University**                                                                          **New York, NY**
*Bachelor of Arts in Economics and Mathematics, Departmental Honors*                            *May 2011*

## EXPERIENCE

**Combocurve Inc**                                                                                 **Boston, MA**
*Optimization Specialist*                                                             *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**                                                            **Cambridge, MA**
*Machine Learning Specialist | Product Manager*                                 *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**                                                                               **New York, NY**
*Data Science Intern*                                                                  *June 2016–August 2016*
- Implemented a suite of classification models to gauge the riskiness of potential borrowers (**sklearn**).

**Harvard Business School**                                                                    **Cambridge, MA**
*Research Associate*                                                                  *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