

Tikhon Jelvis

jelv.is [TikhonJelvis](https://github.com/TikhonJelvis) [tikhon-jelvis](https://www.linkedin.com/in/tikhon-jelvis) tikhon@jelv.is

Experience

- | | | |
|---|-------------------------|--------------------------|
| Principal ML Engineer | Target | Oct 2019–Jun 2022 |
| <ul style="list-style-type: none">• Tech lead on large-scale deep learning model for demand forecasting<ul style="list-style-type: none">– Day-granularity forecasts for 100k SKUs x 2000 Target stores x 14 weeks (20B forecasts)– Generated embeddings used for similarity, clustering and training explainable forecasting models• Developed store similarity API based on embeddings from deep learning model<ul style="list-style-type: none">– Created first-of-a-kind item-store demand-based clustering model, used for assortment planning• Led refactor/redesign + containerization for demand forecasting model training• Created system requirements for new AI infrastructure across the AI teams at Target• Mentored teams working on new-item forecast and forecast training scalability<ul style="list-style-type: none">– Guided architecture + system design | | |
| Lead ML Engineer | Target | Jul 2016–Oct 2019 |
| <ul style="list-style-type: none">• Designed three generations of Target’s multi-echelon inventory control simulation (Haskell, Rust)<ul style="list-style-type: none">– Scaled to support sales and operations planning for $\approx 30\%$ of Target’s SKUs– Improved SKU availability across Target stores by 50bps– Detected supply chain defects ahead of time– Supported scenario planning for events like COVID or extreme weather– Improved runtime performance by 15–20x across generations• Led software design for warehouse operations simulation (Python)<ul style="list-style-type: none">– Simulated scenarios for new automation in Perth-Amboy flow center– Evolved into labor planning tool for 30+ Target distribution centers• Led team to define explicit protocols between pipeline components<ul style="list-style-type: none">– Saved hours of work each week when deploying pipelines– Designed interface description language to help overcome the team’s initial friction: target/theta-idl (Haskell, Rust, Python)• Taught multi-year course on functional programming and Haskell | | |
| Software Engineer | Esper | Jul 2014–Oct 2015 |
| <ul style="list-style-type: none">• Implemented OAuth, IMAP and GMail API in backend (OCaml)• Wrote Chrome extension that injected a tool bar + sidebar into GMail UI (TypeScript)• Prototyped Android app (Java) | | |
| Research Assistant | Berkeley Par Lab | Aug 2012–Nov 2013 |
| <ul style="list-style-type: none">• Implemented + evaluated algorithms to synthesize code for GA144 chips• Co-author on PLDI 2014 paper | | |
| Tech Intern | Jane Street | Jun 2013–Aug 2013 |
| <ul style="list-style-type: none">• Two OCaml projects: live data visualization tool + userland automount replacement | | |

Skills

- Languages: Haskell, Python, Rust, OCaml, Scala, Java, TypeScript, JavaScript
- Skills: Hadoop/Hive, Nix, stochastic optimization, simulation, domain-specific languages (DSLs)

Publications

- *Foundations of Reinforcement Learning* ([TikhonJelvis/rl-book](https://github.com/TikhonJelvis/rl-book)) CRC Press, 2022–2023
 - Co-author with Ashwin Rao; used for CME 241 at Stanford
- Chlorophyll: Synthesis-Aided Compiler for Low-Power Spatial Architectures PLDI 2014
- 5+ pending patents 2018–2022

Projects

- 10+ [conference talks](#) 2015–now
 - [Reasoning under Uncertainty](#) Introduction to Markov decision processes (Haskell Love 2020)
 - [Functional Reactive Programming](#) (Scale by the Bay 2019)
 - [Radix Trees](#) (Lambda World 2018, Scale by the Bay 2018)
- Open source
 - Theta ([@target/theta-idl](#)): an interface description language and serialization library for Haskell, Rust and Python
 - Didactic Python [RL framework](#) for *Foundations of Reinforcement Learning* book
 - Upstreamed fixes to [Nixpkgs](#), the [Haskell avro library](#) and more
- Writing
 - Top 20 Haskell contributor on Stack Overflow
 - Quora Top Writer; example posts:
 - * [How to decided which modules to couple or decouple](#)
 - * [Why I use Haskell](#)
 - * [Explanation of laziness in Haskell](#)

Community

- Director, Haskell.org 2018–now
 - Director for the 501(c)(3) that runs the Haskell website + community infrastructure
- BayHac Organizer 2017–2018
 - Organized + raised funds for three-day Haskell community conference with >100 attendees
- Bay Area Haskell Meetup Organizer 2016–2020
 - Hosted 20+ Haskell talks with 20–50 attendees

Education

BS EECS (incomplete)	University of California, Berkeley	2010–2013
----------------------	------------------------------------	-----------