

Tikhon Jelvis

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Experience


Software Engineer **CXScore** Jan 2023–Present

- A bit of everything as one of the first engineers at CXScore
- Built the Python framework we use for running ML models against live web pages
- Wrote backend for automated web and mobile accessibility testing

Principal Engineer **Target** Oct 2019–Jun 2022

- Engineering lead on large-scale deep learning model for demand forecasting (Python, Hadoop)
 - 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
 - Put model into production with domain-specific APIs
- Created system requirements for new AI infrastructure across the AI teams at Target
- Mentored teams working on new-item forecast and forecast training scalability
 - Guided architecture + system design

Lead Engineer **Target** Jul 2016–Oct 2019

- Designed three generations of Target’s multi-echelon inventory control simulation (Haskell, Rust)
 - 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)
 - 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
 - Saved hours of work each week when deploying pipelines
 - Designed interface description language to help overcome the team’s initial friction:  [target/theta-idl](https://github.com/target/theta-idl)
- Taught multi-year course on functional programming and Haskell

Software Engineer **Esper** Jul 2014–Oct 2015

- 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

- Implemented + evaluated algorithms to synthesize code for GA144 chips
- Co-author on PLDI 2014 paper


Tech Intern **Jane Street** Jun 2013–Aug 2013

- 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
 - 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
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