

# Tikhon Jelvis

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

## Experience


**Founding Software Engineer** **CXScore** **Jan 2023–Present**

- Built Python framework for running ML models against live web pages
- Developed accessibility tests using the Python framework + LLMs
- Expanded framework for automated testing of native mobile apps
- Wrote backend services for all of our Python-based accessibility tests

**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

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- 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

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- 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

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