PATRICK LAVICTOIRE

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EXPERIENCE

Engineering Manager, Apple 2021 -

· I'm the tech lead for an excellent team which ensures the reliability of answers for Siri and other Apple products, in a world where external data sources are needed to stay up-to-date, but suffer from unreliability / irrelevance / staleness.

Machine Learning Engineer, Apple 2020 - 2021

· I previously worked on the same team as above, training models and achieving major improvements in Apple's resilience against incorporating bad external information, in addition to managing tradeoffs, collecting better data, and analyzing the team's core performance.

Research Scientist / Data Scientist, Lyft 2017 - 2020

· I built machine learned models for production on both the Locations team and the Integrity team. On the Locations team, I built the first end-to-end trained probabilistic model for predicting driver locations. On the Integrity team, I developed and updated ML models to catch fraudulent behavior, and I identified and mitigated a significant (previously untracked) vector of fraud.

Research Fellow, Machine Intelligence Research Institute (MIRI) 2015 - 2017

· MIRI does theoretical work on the foundations of artificial intelligence, seeking a framework for reliably beneficial AI. I published several papers with them on topics in decision theory and machine learning, and also led a series of research workshops for participants in academia and industry, leading to a large amount of original work and several new hires.

Principal Engineer, Quixey 2013 - 2014

· Quixey was an app search startup. I worked as an ML engineer and general mathematical consultant; I updated the training target and data, improved search relevance dramatically while simplifying the model architecture, developed new features, and successfully pushed for the company's first responsible data collection policy.

Visiting Assistant Professor, University of Wisconsin–Madison 2010 - 2013

· This was a three-year postdoctoral position in pure mathematics. I published research in harmonic analysis, maximal inequalities, and ergodic theory; and I taught 8 courses at the undergraduate level.

LANGUAGES AND LIBRARIES

Python and the usual suspects (numpy, pandas, scikit-learn, TensorFlow, Keras); Java

EDUCATION

PhD (Mathematics), University of California at Berkeley 2005-2010

· Advisor: Michael Christ

BA (Mathematics), University of Chicago 2001-2005

SELECTED PUBLICATIONS AND GRANTS

Alignment for Advanced Machine Learning Systems

· Ethics of Artificial Intelligence (2016), 342-382.
With J. Taylor, E. Yudkowsky, and A. Critch.

Program Equilibrium in the Prisoner's Dilemma via Löb's Theorem

· Workshops at the Twenty-Eighth AAAI Conference on Artificial Intelligence (2014)
With B. Fallenstein, E. Yudkowsky, M. Barasz, P. Christiano, and M. Herreshoff.

Multivariable averaging on sparse sets

· Transactions of the AMS 366 (2014), 2975-3025
With A. Parrish and J. Rosenblatt.

National Science Foundation, Analysis Grant DMS-1201314 2012-2013

Pointwise Convergence for Subsequences of Weighted Averages

· Colloquium Mathematicum 124 (2011), 157–168

Universally L^1-Bad Arithmetic Sequences

· Journal d'Analyse Mathematique 113 (2011, no. 1), 241–263

An L^1 Ergodic Theorem for Sparse Random Subsequences

· Mathematical Research Letters 16 (2009), no. 5, 849–859.