IAN HORN

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PROFESSIONAL EXPERIENCE

Stitch Fix
2015 - Present
Data Scientist — *San Francisco, CA*

- Causal inference of experimental and quasi-experimental data
- Learned efficient models of choices most improvable by secondary human review
- Experimentation on stylist-client affinities
- Natural language processing to learn human interpretable style attributes from text feedback
- Basic computer vision to learn human interpretable visual similarity between styles

Swift Navigation
2013 - 2015
Data Scientist — *San Francisco, CA*

- Built estimators that gave GPS positions to within a centimeter
- Developed predictive models to decrease solution latency by multiple orders of magnitude
- Modified standard filters to adaptively identify and reject bad measurements
- Created a software-in-the-loop framework to simulate estimation algorithms
- Patent application (*Systems and Methods for Real Time Kinematic Satellite Positioning*, 2015)

Remilon, LLC (now Study.com)
2012 - 2013
Technical Data Analyst — *Mountain View, CA*

- Built adaptive ranking system (large scale sorta-contextual bandit) that significantly increased revenue company-wide
- Wrote numerical optimization code for fast large scale model fitting
- Ad hoc analysis and ETL around user behavior

Joby Energy & Joby Aviation
2009 - 2011
Engineer — *Santa Cruz, CA*

- Built numerical optimization tools around existing CFD code to optimize propeller blade shapes
- Developed sensor fusion models to characterize aerodynamic performance with low signal-to-noise asynchronous data
- Built physical simulation of complete airborne wind turbine system

UC Santa Cruz (Santa Cruz Institute of Particle Physics)
2006 - 2008
Research Assistant — *Santa Cruz, CA*

- Performed layout of low-noise amplifier for use in the ATLAS particle accelerator
- Completed preliminary theoretical analysis of a new technique for more precise particle tracking

NOTABLE PERSONAL PROJECTS

- Nombot: Deep unsupervised feature generation for efficient active learning of CRFs for sequence labeling of food ingredients.
- Jokes: Created a largeish (0.5M) joke dataset and basic neural models for joke telling and punchline completion.
- Neural program induction: Built a simple lambda calculus and reinforcement learning algorithm to learn programs from data.
- Hipsterplot: a silly, simple Python command line plotter that somehow remains my most popular project on github
- PGM: a prototype Haskell probabilistic graphical model library designed for simplicity of use

SELECT SKILLS

Stats/ML	Causal inference, experimental design, graphical models, deep learning, dynamic estimation, bandits, active learning
Numerical Computing	Linear algebra, numerical optimization
Languages (recent)	Python, SQL, R
Languages (older)	C, Mathematica, Haskell, Java, Fortran, MATLAB, LaTeX

EDUCATION

University of California, Santa Cruz *2012*

B.S. Applied Physics

Thesis: *Inference of Transfer Rates of a 1D Markov Process* (inferring rates between unobserved latent substructures)