https://jaredtn.com

Jared T Nielsen

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Education

B.S. Applied Mathematics; 3.82 GPA — Apr 2019
Brigham Young University — *Provo, UT*

Work Experience

Machine Learning Engineer - *Wish* — May 2019 - Present

- Drove 0.4% revenue increase ($3MM - 5MM yearly revenue, per A/B testing) by identifying and recommending daily trending products.
- Launched the company's first realtime computer vision pipeline, classifying 100 images/second with Amazon SQS and TensorFlow Serving in Golang. Efficiently backfilled predictions for tens of millions of products.
- Designed a trend detection algorithm in four different languages using probabilistic keyword tracking and NLP features. Integrated trends into product recommendations, search autocomplete, and email campaigns.
- Created an dataset of 3 million products for category prediction and content filtering. Improved content filtering precision by 15x by training and ensembling both an image & text classifier, mitigating noisy imbalanced data.
- Used: go, python, mongodb, tensorflow, sql, hive, presto, docker, spark

Machine Learning Researcher - *Perception, Control and Cognition Lab* — Sep 2018 - May 2019

- Led a consulting project responsible for $120,000 in grant funding. Developed sophisticated unsupervised and semi-supervised methods for early alert systems in semiconductor manufacturing.
- Video frame prediction using invertible neural networks and controlled dynamical systems.
- Fourier convolutional neural networks, faster inference with activation functions in the complex domain.
- Preprint: *Invertible Linear Embeddings for Video*.
- Used: python, pytorch, numpy/scipy, docker

Microsoft - *Software Engineer Intern* — May 2018 - Aug 2018

- Launched a secure VPN type for Microsoft Azure enterprises, immediately enabling 1,000 new client subscriptions and increasing monthly revenue by $100,000. Completed project three weeks ahead of schedule.
- Gathered requirements from external VPN provider, fixed critical bugs, and developed end-to-end features.
- Improved service uptime and build speed by migrating portions of the monolithic codebase to microservices.
- Used: c#, typescript, bazel, selenium, git

MantisX - *Software Developer* — Jun 2016 - May 2018

- Achieved 99% accuracy with a 2% false positive rate, using a convolutional neural network for firearm shot detection from gyroscope and accelerometer timeseries data. Deployed model to iOS and Android.
- Designed, deployed, and scaled a production database handling 50K monthly active users and 200MM shots.
- Opened a market partnership with the U.S. Marines by creating secure private groups.
- Used: django, postgresql, aws, python, tensorflow, redis, html/css, javascript, git

Projects & Other

NeurIPS Competition 2019: Competing in CellSignal, applying computer vision to disentangle biological signal from experimental noise in cellular images. Creating TPU pipelines on Google Cloud.

March Madness 2019: Modified Google's PageRank algorithm to track basketball team strength instead of website popularity, then competed in ESPN's bracket challenge.

Google Hash Code 2019: Placed in top 10% of teams worldwide, finding the optimal photo slideshow layout for continuity and diversity, with a Metropolis-Hastings algorithm.

Coursework: Computational linear algebra, convex optimization, differential equations, Bayesian statistics, control theory, Fourier analysis, Monte Carlo methods, Markov chains, wavelets, expectation maximization, PCA, LDA.

Entrepreneurship: 1^{st} place BYU New Venture Challenge 2018 with *Fresh Stamp*, encoding food expiration dates directly into barcodes. Our partnership received seed funding offers of $\$300,000$.