David Ding

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EXPERIENCE

Cockroach Labs   *Remote; 08/2021 – Present*
Member of Technical Staff

Citizen App   *NYC / Remote; 2018 – 02/2021*
Senior Backend Software Engineer

- Engineering lead of the platform stability team: designed cost-effective infrastructure that could handle unpredictable extreme spikes in traffic.
  - **Maintained 99.95% uptime**. My work included adding rate limiting throughout our systems to prevent overloads, separating out vital systems into isolated microservices, stabilizing our video stack, and replacing the CDN in front of our main API.
  - Significantly extended company runway by **reducing infrastructure costs by 50%**. Doing this involved programmatically detecting and rewriting bad DB queries, cutting away half of our DB replicas, adjusting inefficient uses of CPU, memory, and autoscaling, and more.
- Engineering lead of the COVID Safety team: helped people safely navigate a COVID-19 world.
  - Built the backend for and maintained the nation's most widely used contact tracing app, SafePass, with **over 1M users**. Navigated us through rapidly shifting societal conditions, and official collaborations with various governments, Apple, and Google, to a successful launch. Notified people of **1000s of potential exposures** to COVID-19.

Google   *NYC / Bay Area; 2014 – 2018*
Software Engineer

- My team took highly noisy Google Maps business updates from numerous sources, like ad feeds and user edits, and auto-matched them with existing businesses, ensuring that a user would see all business info in a single listing.
  - Achieved a **30% relative gain** in the pipeline's precision to over 90% (while maintaining recall), by improving, retraining, and maintaining the ML model, and engineering thread-safe model features with 2-second p99 latency and 100MB footprint constraints.
  - Developed online indexing methods to retrieve matching candidates for an input business, ensuring performance while processing ∼1000 index updates per second.

ML Research Apprentice

- **Published a paper** (`arXiv:1709.06680`) in interpretable ML models: specifically, extending existing highly interpretable lattice-based models to deeper and more flexible neural networks.

EDUCATION

Columbia University
M.S.; Machine Learning; GPA 4.0/4.0   *2014 – 2016*

California Institute of Technology
B.S.; Mathematics and Computer Science; GPA 4.0/4.0   *2010 – 2014*

TECHNICAL SKILLS (MOST → LEAST PROFICIENT)

- **Languages**: Go, Python, C++, C, Scheme, JavaScript
- **Tools**: Kubernetes, Google Cloud, MySQL, Redis, Git, Cassandra, TensorFlow, MATLAB, LaTeX

SOME HOBBIES AND INTERESTS

- **Music**: singing (New York City Gay Men's Chorus, tenor 2), piano, saxophone, guitar
- **Puzzles**: MIT Mystery Hunt (one-time winning team), Google Games (undefeated in LA area during all 4 years of participation), and various other puzzle hunts.
- **Outdoors**: mountaineering (Aconcagua, Kilimanjaro, Mt. Whitney, others), hiking (led week-long treks through the Sierra Nevada and the Pacific Northwest), skiing (type 3), gardening