Bhareth Kachroo

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Canadian Citizen (TN Status)

Summary

- Built multiple high-performance cloud-based systems for multidimensional data and AI applications;
- 6 years of customer-facing technical leadership including product management, design, sales, and support;

Experience

2024-2025 **ML Engineering Consulting**, *Proteowise, Codetta, Boardy.ai, Diagram Ventures*.

- Built an ML labelling-training-evaluation pipeline with 4X error improvement for computer-vision classification of Western Blot bands for automated protein detection;
- Developed human interaction model for gen AI intro systems with 3X improvement in acceptance rates;
- Designed a novel and performant detection and registration algorithm for nano-array imagery in diagnostic devices robust to 20-degree angular deviations without registration markers;
- Delivered a technical feasibility assessment for 75% cost reduction of construction takeoff/estimation using LLMs and computer vision;

2023-2024 **Chief Technology Officer**, *streambatch: Fused Satellite Data for Agriculture*.

- Designed a cloud-based data-engineering system for near-realtime extraction of time series data from PB-scale satellite imagery from multiple constellations, accessible via API, with 100X cost-savings;
- Deployed a satellite HPC cluster on AWS with 45M ha/min throughput using IO-optimization via dask, multithreading, and memory-mapping;
- Developed a data-fusion algorithm for multi-resolution pooling of observations from multiple constellations to produce a global, 10m NDVI data product with 3X denser coverage;
- Applied our novel dataset to modelling regenerative agriculture & deforestation practices for 3M+ farms globally;

2019-2023 **Chief Technology Officer**, *Pharos Platforms: Big Geodata for Climate Risk*.

- Built a realtime raster geodata engineering service to drive generative spatiotemporal climate risk models for agriculture;
- Published data visualizations of climate & weather data via social media with 2.1M views;
- Won a grant for deep learning realtime flood forecasting tool fusing river-gauge and weather data, delivered to government stakeholders with 93% 24hr accuracy;
- Produced multi-year waterflow & energy generation forecasts for 200 U.S. hydropower stations using downscaled GCMs, hydrology, energy pricing and proprietary generation data;
- Collaborated with an interdisciplinary technical review team of academics and guided students;
- Pitched investors for preseed round, hired and managed a team of engineers;

2018-2019 **Optical/Computer Vision Engineer**, *Chipcare: Multimodal POC Diagnostic Devices*.

- Developed a near-realtime CV pipeline for 30GB/run microscopic flow data on a point-of-care device;
- Built fluorescent microscopic laser illumination video-system and classified diagnostic targets (8 classes, 97% acc.) through trained statistical models;

Skills

Technical *Data Eng, Data Viz, Applied ML, Profiling, GPU acceleration, API Design, Cloud Computing (AWS, GCP), Python, R, Julia, Matlab, JS, LaTeX, Git, Docker*

Packages *pytorch, matplotlib, scikit-learn, pandas/numpy/scipy, xarray/zarr, cuda/cupy, opencv, dask, D3.js, streamlit, fil/cprofile/sciagraph*

Education

2014–2018 **B.AS. in Engineering Science (Physics)**, *University of Toronto*, Toronto.

A rigorous engineering program with a focus on first-principles.

- **David C. Naylor Scholarship**