Dominic Dotterrer, Ph.D.

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PROFESSIONAL EXPERIENCE

Vice President of Data Science, **HiLabs Inc.**

Feb 2025 - Present

Leadership. Reported directly to the CEO of healthtech startup. Led the data science division of 50+ R&D data scientists. Developed and aligned scientific thought leadership to business objectives. Orchestrated the implementation of a core service-oriented AI capability stack for accelerated product development. Cultivated ownership-anchored people leadership centered on capability building. Directed all AI R&D programs and 45+ service development initiatives—launching 4 new product lines from concept to market, driving +$10M ARR.

Operations. Led architectural planning for model services with enterprise-scale inference workloads, with cloud deployments in AWS, GCP, Azure and Snowflake. Standardized the testing and release process with CI/CD, reproducible evaluation frameworks, model and data versioning with MLFlow, EC2 right-sizing, cost optimization, EKS telemetry and post-release production monitoring. Developed a quality framework for evaluating agentic code generation, then trained the division to systematically apply it, while following up with quality monitoring regimes, such as code review agents with Hivel and Sonar tooling.

Research. Defined division-wide R&D roadmaps driven by contemporary research while leading market-facing positioning. Transitioned AI model services from single-pass generation to agentic skills architectures. Implemented AI governance patterns based on NIST AI RMF and oversaw HITRUST AI certification.

Customer Success. Translated complex healthcare challenges into executable technical specifications and scoped statements of work. Established executive-level technical trust with our enterprise customers and managed the various AI compliance approval processes. Drove customer adoption of bleed-edge solutioning.

Vice President of Core Research & Development, **Goldman Sachs & Co.**

Nov 2019 - Nov 2024

Research. Core R&D's mandate was to integrate bleeding edge technology into the bank's operations and build the firm's intellectual property through publications and patents.

- Developed software with mathematically verifiable methods for assessing risk of statistical leakage of client trading signals within aggregated market data or ML models trained on client transaction data.
- Designed blockchain protocols for validating KYC requirements with on-chain credentials.
- Developed a decoder-based service for generating *privacy-protected* synthetic market data aggregated from sensitive client transactions, with automated calibration of leakage risk versus data utility.
- **US Patent No: 11593360 B2** "Empirically Providing Data Privacy with Reduced Noise"
- **US Patent No: 12229775 B2** "Pseudonymous transactions on blockchains compliant with know your customer regulations and reporting requirements"

Implementation. Delivered bespoke product solutions to core engineering, trading desks, IB teams and control functions across the firm.

- Implemented LLM guardrails systems—based on NeMo and LlamaGuard—for identifying and blocking leakages of material nonpublic information by RAG-based LLMs.
- Executed optimization projects for trading desks and the prime brokerage, including hedging strategies with dynamic risk limits and productionizing optimal order execution algorithms.
- Architected federated learning regimes for privately training models across sensitive data partitions.

Principal Data Scientist, **Namely Inc**.

Apr 2019 - Sep 2019

Automation. Trained and integrated language models for HR software products to automate operations and support customer engagement and self-service. Productized the autoscaling services in DataBricks.

Data Insights. Developed data mining functionalities for a large corpus of unstructured client engagement data used for deriving business insights, routing customer requests and tracking customer sentiment,

surfacing the "next best action" for relationship management.

1st Place, 2019 Namely Hackathon: "Entropy-based retrieval for Customer FAQs"

Lead Data Scientist, **Performance-Star, LLC**

Nov 2017 - Apr 2019

Solution Design. Developed and deployed ML applications for monitoring fabrication steps in semiconductor manufacturing equipment (deposition and plasma etch tools). Provided high accuracy novelty and hidden state detection from process traces, surfacing digest information about tool operation and consumables.

Scientific Mentorship. Led a team of 6 data scientists and engineers in a technical complex problem space requiring knowledge of plasma physics modeling and control theory. Scientific mentorship required rapid upskilling of the team with advanced mathematical and physical concepts.

Aug 2016 - Sep 2017

Computer Science Education Fellow, **Dept. of Computer Science, Stanford University**

Developed curriculum and content for courses in Graphics, Computer Vision, Graph Algorithms and Math Methods for Machine Learning. Curriculum was developed around software development practicum.

Jul 2013 - Aug 2016

L.E. Dickson Instructor, **Dept. of Mathematics, University of Chicago**

Research. In this research post-doctoral fellowship, I specialized in topics related to geometric and combinatorial optimization (see publication list).

Technical Communication. Additionally, I have an extensive teaching CV across math, statistics and computer science, with additional service in numerous academic enrichment programs.

Oct 2012 - May 2013

Research & Development Fellow, **MITACS Accelerate**

MITACS Grant: "Improving Estimates of Complex Option-Based Employee Compensation"

Provided R&D consulting to *SyncBASE Inc*, in which I developed more accurate pricing models for specific exotic stock options. Pricing models were implemented in the core product to drive customer self-service for stock-based employee compensation based on complex market-wide benchmarks.

Nov 2010 - June 2011

Visiting Researcher, **Institute for Advanced Study**, **Princeton**

Collaborated with renown mathematicians on a spectral / isoperimetric theory of polyhedral geometries.

EDUCATION

Ph.D., Mathematics, **University of Toronto**

Advisor: Larry Guth, MIT

Thesis: *The (co)isoperimetric problem in (random) polyhedra*

M.Sc. Mathematics, **Stanford University**

B.A. Mathematics, **University of California, Santa Cruz**

- Highest Honors in the Major
- Chancellor's Award for Excellence
- J.W.T. Young's Prize for Research in Graph Theory

TECHNICAL CAPABILITIES

Algorithmic Foundations. Agent design, Agentic skills, MCP, Retrieval Systems, Unsupervised Machine Learning, Bayesian Inference, Causal Inference, Deep Learning, Autoencoders, GANs, Numerical Optimization, Spectral Theory, Functional Analysis, SDEs, Probabilistic Methods, Differential Privacy, Federated Learning, Information Theory, Research & Development

Engineering & Infrastructure. C/C++, Java, Python, Scala, Spark, Git, k8s, SQL, NumPy, SciPy, Pandas, LLM / LMM / VLM, PyTorch, TensorFlow, Hugging Face, AWS / Azure / GCP, MLFLow / W&B