

# **GIRISH NATHAN**

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## **PROFESSIONAL SUMMARY**

Senior AI/ML hands-on Technology Leader (15+ years) with deep experience in building and leading high performing AI ML teams. Deep expertise in statistical physics, ML at scale, ML platforms, and delivering measurable business impact on a timely schedule. Experienced speaker and lecturer.

## **CORE COMPETENCIES**

**Leadership & Strategy:** ML platform architecture, AI CoE development, MLOps pipelines, feature engineering at scale, A/B testing, LLM Ops and LLM frameworks

**Techniques:** Reinforcement learning, deep learning, contextual bandits, graph neural networks, NLP, hierarchical topic models, privacy-preserving ML. Fluent in deep learning frameworks like Tensorflow, Pytorch and modern LLM end to end toolkits like LangChain, LLamaIndex, MCP and A2A.

**Physics :** expert in statistical physics, quantum mechanics, nuclear physics and deep experience in mathematical physics

**Stack:** C, TypeScript, Python, R, Spark, Ray, FLAML, prompt engineering, agentic AI workflows, awk, sed, perl

**Domains:** Fintech, e-commerce, travel, legal tech, healthcare, physics and inverse problems, geophysics

## **PROFESSIONAL EXPERIENCE**

### **VP of AI, Botminds AI (July 25 - present)**

Titular AI head at a small startup in Chennai that builds AI solutions for Indian and US customers

### **AI & ML Technology Consultant — Self-Employed, Chennai, India (Aug 2024 – Present)**

- End-to-end ML pipeline & experimentation (+15% CTR, +8% conversions) that was used by a clothing chain to improve rack stacking and improving conversions ; early experiments indicate a CVR lift of 23% over baseline

- Retirement portfolio optimizer (+4 bps vs NSE, 12 months) for a family firm based out of Chennai
- Restaurant MAB framework being tested out to enable better pricing and choice for customers while also optimising for riders
- Apollo Hospitals agentic matching; privacy-preserving updates; 2-site pilot

**Chief Data Officer — Tonik Bank, Chennai, India (Oct 2023 – May 2024)**

- Led 10 ML + 8 DE and delivered a series of lectures on basic AI and stats company-wide (75 engineers, 30 product and business)
- Loan recommender in prod (Feb 2024) to improve loan production and quality by 11% in 4 months
- Built Ray/FLAML platform from scratch for fastening modeling (~10x faster model development from prototype to production)

**Senior Director of ML & AI — Razorpay, Bangalore, India (Sep 2022 – Sep 2023)**

- Built AI/ML CoE (team 14), delivered 3 talks in industry leading conferences and ran workshops for LLMs across engineering and data science orgs
- Payment routing contextual bandits (+11% over baseline, prod) to enable effective, on-time payments rolled across all 5000 payment “points”
- RTO insurance models (+7% vs XGBoost, prod) to combat the issue of fraudsters gaming e-commerce platforms ; production models reduced fraud by 7% and impacted customer NPs positively by 22 points over a 4 month pilot
- LLM apps; Delta Live/lakehouse infra

**Director of ML & Applied Research — Expedia Group, Seattle, WA (Aug 2020 – Jul 2022)**

- Led team of 28 across SEO/mobile/CRM/incentives
- NLP/DL to improve content quality (prod May 2020)
- Hierarchical MABs (+25% opens, +9% transactions)
- GNNs for travel KG recommendations

**Principal Researcher — Expedia Group, Seattle, WA (Oct 2019 – Aug 2020)**

- Review mining (+9% dwell, +5% transactions)
- App reco MABs (+8% downloads)
- Hotel reco via matrix approx + bipartite matching (+8% engagement)
- Team scale-up 5→28 over 3 yrs; led a mix of scientists, engineers, analysts and MLOps

**Senior Applied Scientist — Amazon, Seattle, WA (Sep 2018 – Sep 2019)**

- RL engine for brand ad effectiveness (500+ brands, 1000+ expansions)
- Single-touch attribution; improved brand discovery, and using detrimental point processes to balance relevance with discovery

#### **Senior Data Scientist — Microsoft, Bellevue, WA (Aug 2014 – Jul 2018)**

- Multi-armed bandit framework in production for improving Microsoft Band nudges (+12% satisfaction, prod May 2016)
- Hierarchical topic modeling to identify email topics and sub-topics and enable auto-foldering → rolled out to 100MM+ users in May 2017
- Privacy preserving machine learning using fully homomorphic encryption
- 4 projects shipped (led 2 scientists + 4 engineers)

#### **Machine Learning Scientist — Amazon, Bangalore, India (May 2012 – Aug 2014)**

- Automated browse classification (\$80MM+ savings over 2 yrs, prod Aug 2013) where we helped build a multi-class, multi-label classifier for over 25000 browse nodes
- Used LSH similarity to identify substitute products at scale (latency < 500 ms) and reduced 3P seller price-gouging attempts by 40%

#### **Senior Research Engineer — Yahoo!, Bangalore, India (Sep 2011 – May 2012)**

- Bayesian bandits for ads (+30% CTR, India) ; contextual advertising in the Indian marketplace

#### **Research Geophysicist — ION Geophysical, Houston & Denver, USA (Jul 2006 – Jul 2011)**

- Inverse optimization for seismic/exploration
- Wavelet signatures via lasso/basis pursuit

## **EDUCATION**

Ph.D. in Physics — University of Houston (2006) ; focus : spatiotemporal pattern formations in nonequilibrium systems

## **PUBLICATIONS & PATENTS**

Several, available from both Google Scholar and on request. Patents : 2 USPTO granted, 7 applied for