Run Chen

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Feel free to check my personal website: https://bigruntheory.github.io/

Summary

Applied Scientist with a Ph.D. in Operations Research and hands-on expertise in **Agentic AI systems**, **LLM fine-tuning and evaluation**, **large-scale optimization**, and **end-to-end ML for autonomous decision-making**. Skilled in building intelligent systems that reason, plan, and act across cloud infrastructure, recommender systems, and ads platforms (practical knowledge of **ads bidding strategies**, **auction mechanisms** and **marketplace economics**). Proven ability to collaborate with engineering, science, and product teams to deliver scalable, data-driven solutions that align with business incentives and drive measurable product outcomes.

Skills

- **Core AI/ML:** Agentic AI, LLM fine-tuning & evaluation, Deep learning, Optimization, Probabilistic modeling
- **Programming:** Python, PySpark, C
- **Systems:** Large-scale ML systems, Distributed computing, A/B testing pipelines
- **Domain Expertise:** Ads & personalization, Recommender systems, Demand forecast, Cloud capacity optimization
- **Cloud & Tools:** Azure (certified), AWS, Databricks
- **Certificates:**
  – *DeepLearning.AI Certified: Natural Language Processing Specialization*
  – *Microsoft Certified: Azure AI Fundamentals*
  – *Microsoft Certified: Azure Data Fundamentals*

Experience

DATA & APPLIED SCIENTIST

Microsoft, Redmond, WA | October 2022 – Present

Develop AI-driven and ML-powered systems for forecasting and resource planning across global Azure capacity. Focus on integrating agentic reasoning, model diagnostics, and scalable decision tools into operational workflows.

- Built **Agentic AI components** to enhance forecast explainability and autonomous diagnostics, improving insight generation and reducing manual analysis time.
- Developed and deployed **SDFE (Standard Deviation of Forecast Error) metrics** across Azure resources, integrating statistical modeling and LLM-driven reasoning interfaces for anomaly understanding and forecast quality evaluation.
- Designed and implemented **inventory buffer optimization frameworks** based on newsvendor model to balance demand uncertainty, cost, and supply availability globally.
- Created **optimization-driven rack planning engine** that incorporates power, component, and budget constraints, improving data-center deployment efficiency.
- Partnered across engineering, PM, and infra teams to **deploy AI/ML solutions in production**, ensuring scalability, reliability, and measurable business impact.

MACHINE LEARNING ENGINEER

PointsBet, Denver, CO | September 2021 – October 2022

Built real-time applied ML systems for user personalization and fraud detection in a high-volume online environment.

- Developed and deployed **large-scale recommender systems** using collaborative filtering and embeddings, increasing personalization and user engagement across sports betting markets.
- Built **real-time anomaly detection agents** that monitored transactions for fraud and promotional abuse, triggering automated decisioning actions.
- Collaborated with platform teams to **optimize feature pipelines, latency, and model serving** for production traffic.

RESEARCH ENGINEER INTERN

Yahoo!, Sunnyvale, CA | May 2018 – August 2018

Worked on large-scale ad ranking and targeting models for campaign performance optimization.

- Designed and trained a **factorization-machine-based ad recommender** to improve relevance and CTR for highly sparse user-segmentation data.
- Conducted extensive **offline evaluation** (CTR lift, ranking metrics) and collaborated with ads teams on integration into production workflows.

- Gained hands-on experience with **ads bidding** and **auction workflows**, including **second-price auction mechanisms**, and aligned model outputs with auction-driven delivery strategies.

Education

PH.D. – INDUSTRIAL ENGINEERING

Purdue University, West Lafayette, IN, USA | December 2020

My research focuses on developing fundamental distributed algorithms for solving large-scale optimization problems with applications to energy systems and machine learning models. **My Google Scholar Profile**

B.S. - PHYSICS

University of Science and Technology of China, Hefei, Anhui, China | June 2011