

Itai Sfaradi, Ph.D.

Physicist

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Executive Summary

Physicist with 9 years of experience leading complex analytics initiatives from definition through delivery. Expert in statistical modeling, causal inference, predictive analytics, and experimental design, with a proven record of turning large-scale, unstructured datasets into actionable product and providing physical insights. Adept at collaborating across organizations and departments to define success metrics, guide paths to new data, and influence strategic decisions. Proven record of publishing in top-tier peer-reviewed journals ([see first author publication list](#)). Experienced with ML and AI, with a vast understanding of the theoretical and technical implementations of LLMs in the context of verified scientific outputs.

With great passion for solving complex problems by using data-driven science and developing new testable models.

Core competencies: Predictive Modeling, Statistical Inference, Data Science, AI/ML, Scientific Communication, Cross-Functional Leadership.

Professional Experience

University of California, Berkeley

Research Scientist (Postdoctoral)

2024 – Present

- Leading and designing a novel ML/AI initiative from proof-of-concept to delivery, and introducing interpretability of LLMs for time-series classification **for the first time** in time-domain astronomy.
- Leading cross-functional teams across multiple organizations, managing timelines, roadmaps, and analytical deliverables to support mission-critical programs and deliver results on short-timescales (~days) and high-volume datasets (~TB- scale). This resulted in an increase of 50% in team deliverables during the first year.
- Reached 90% success in obtaining highly competitive facility time by designing and implemented statistical models, forecasting frameworks, and causal inference methods that predict KPI and inform multi-year strategic decisions. This resulted in more than 60% increase in data for future projects compared to previous year.
- Partner with stakeholders to define success metrics, establish data quality standards, and optimize data collection pipelines for fast-evolving environments.

Hebrew University of Jerusalem

Physics Graduate Student (M.Sc. and Ph.D.)

2017 – 2024

- Directed analytics projects that leverage large-scale data mining (thousands of objects) and statistical modeling to extract insights from high-dimensional datasets - increased data-volume in the domain-knowledge by ~ 300%, and shifted current understanding of physical processes.
- Developed predictive models and metrics, and implemented hypothesis-driven experiments to evaluate strategic initiatives and identify growth opportunities - resulting in a 100% increase in meaningful data acquisition.
- Reduced group overhead time by more than 40% by creating robust data integration pipelines and performed advanced querying to analyze multi-source datasets.
- Mentored four junior collaborators, building organizational capabilities in research workflows.

Technical Skills

Languages and Tools: Python, PyTorch, Transformers, Hugging Face, Git and Unix/Linux.

Analytics & Modeling: Predictive modeling, Statistical Inference, Causal Inference, Bayesian Inference, MCMC Analysis, A/B Testing, Time-Series Analysis, Classification, Multi-Dimensional Fourier Analysis.

Other: Metric Design, Experimental Design, Visualization, KPI Development, Scientific Communication.

Education

B.Sc., M.Sc., and Ph.D. in Physics

Hebrew University of Jerusalem

Awards

- Arnold Rosenblum prize - for excellent achievements as a graduate student in astrophysics and cosmology.
- The Racah student's colloquium.