Veome Kapil

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EDUCATION

Johns Hopkins University — **Baltimore, MD**
Doctor of Philosophy (Ph.D.) in Physics — *Expected: July 2026*
Master of Arts (M.A.) in Physics — *Aug 2023*

Princeton University — **Princeton, NJ**
Bachelor of Arts (B.A.) in Physics (GPA: 3.74/4.0) — *June 2021*
Certificate in Applications of Computing — *June 2021*

TECHNICAL SKILLS

Programming: Python (Pandas, Matplotlib, Scikit-learn, NumPy, SciPy), SQL, C++, Mathematica, Java
Data Science and Statistics: Bayesian Inference, Linear Regression, Model Selection, A/B Testing, Bootstrapping, Experimental Design, Principal Component Analysis
Machine Learning: Regression, Classification, LLM Prompt Engineering, t-SNE, UMAP, Feature Engineering

WORK EXPERIENCE

Data Scientist Intern, Product Analytics (PhD) — **May 2025 – August 2025**
Meta — New York City, NY

- Designed and validated a new methodology to identify high-quality creator-to-creator Facebook commenters using heuristic signals; partnered with Data Engineers to publish a dataset **100x larger** and **4x higher quality** than the previous state-of-the-art.
- Uncovered a **critical gap** in comment classification models and deployed an **LLM-based classifier** that **expanded comment inventory by 7%.**
- Devised a novel Bayesian inference framework to detect proxy populations in noisy data, achieving **8× greater sensitivity** than established methods; **presented findings** to senior Data Scientists and Directors, demonstrating impact to both **technical** and **leadership audiences**.

Data Science Intern — **June 2024 – September 2024**
Maryland New Directions — Baltimore, MD

- Built a demographic-based **ML prediction model** for non-profit to identify at-risk populations, **sizing a 45% outreach growth opportunity** amongst unemployed and underemployed communities in Baltimore.
- Implemented an automated **data pipeline** to integrate U.S. Census data with internal company metrics, enabling **real-time insights** about personal and socio-economic obstacles amongst clients.
- Delivered **regular**, **actionable insights** to non-technical stakeholders, driving the **launch of a new internal education program** to improve employment outcomes amongst the most vulnerable clients.

Graduate Research Assistant — **August 2021 – Present**
Johns Hopkins University — Baltimore, MD

Tidal models for binary stellar simulations

- Implemented scalable tidal physics models in the **open-source** COMPAS code; used **statistical inference** to discover **15% fewer** predicted black hole mergers, produced **publication-quality data visualizations.**

Study of systematic bias from gravitational waveform modeling

- Quantified inaccuracies in time-series gravitational wave (GW) models, **revealing 20% error rates** and recommending **10x accuracy improvement** for future GW detectors.

Calibration of neutron star natal kick velocities

- Inferred supernova physics from pulsar observations with Bayesian methods, updating astrophysical models to predict **40% fewer** observable neutron star mergers.

PUBLICATIONS

- First-author, "Calibration of neutron star natal kick velocities..." *Monthly Notices of the Royal Astronomical Society, Volume 519, Issue 4, March 2023, Pages 5893–5901*.
- First-author, "Systematic bias from waveform modeling..." *Physical Review D 109.10 (2024): 104043*.
- Co-author, “Rapid stellar and binary population synthesis with COMPAS: methods paper II” *arXiv:2506.02316*.

AWARDS

- Allen G. Shenstone Prize in Physics, Princeton University (2020-2021)
- The JHU Teaching Institute 2023 Certification, Johns Hopkins University (July 2023)