

# Veome Kapil

(313)-482-8646 | [veomekapil@gmail.com](mailto:veomekapil@gmail.com) | [veomekapil.com](http://veomekapil.com) | [linkedin.com/in/veome-kapil](https://linkedin.com/in/veome-kapil) | [github.com/veome22](https://github.com/veome22)

## EDUCATION

### Johns Hopkins University

Doctor of Philosophy (Ph.D.) in Physics

Master of Arts (M.A.) in Physics

Baltimore, MD

Expected: June 2026

Aug 2023

### Princeton University

Bachelor of Arts (B.A.) in Physics (GPA: 3.74/4.0)

Certificate in Applications of Computing

Princeton, NJ

June 2021

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:** MLOps, LLM Prompt Engineering, Regression, Classification, t-SNE, UMAP, Feature Engineering

## WORK EXPERIENCE

### Data Scientist Intern, Product Analytics (PhD)

May 2025 – August 2025

Meta New York City, NY

- Uncovered **critical gaps** in comment classification via in-depth SQL analysis; developed an **LLM-based predictive model**, expanding usable comment inventory by **7%** and influencing product strategy.
- Transformed large-scale heuristic data into novel dataset of high-quality creator-to-creator commenters; published a dataset **100x larger** and **4x higher quality** than the prior standard to **address inventory shortage** and enable downstream experimentation.
- Devised a novel Bayesian inference framework to detect proxy populations from noisy data, achieving **8x greater sensitivity** than established methods; **presented theoretical model** to senior Data Scientists and Directors along with **practical insights**.

### Data Science Intern

June 2024 – September 2024

Maryland New Directions

Baltimore, MD

- Designed a demographic-based **predictive model** to identify at-risk populations, **sizing a 45% outreach growth opportunity** amongst unemployed and underemployed communities in Baltimore.
- Implemented an automated **data pipeline** to combine U.S. Census data with internal company data, enabling **real-time insights** and **custom metrics** to track personal and socio-economic obstacles amongst clients.
- Delivered **clear, actionable insights** to company leadership, 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)