

# Pratyush Kumar

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## Education

**The Pennsylvania State University - University Park, PA**

Aug 2025 - May 2027

*Master of Science (MS), Computer Science*

**Vellore Institute of Technology - Vellore, India**

Jul 2019 - May 2023

*Bachelor of Technology (B.Tech), Computer Science and Engineering*

## Experience

**Software Engineer** (previously Software Engineering Intern)

Enphase Energy – Bangalore, India

Jan 2023 – Jul 2025

- Developed and scaled **RESTful Rails backend services** used by **5000 daily active users (internal + customers)**, improving cross-service data consistency and reducing integration failures by **25%**
- Architected a **Selenium-based UI regression automation suite**, reducing manual QA effort by **50%** accelerating release readiness
- Automated TestRail reporting workflows using **Python + API integration**, reducing stakeholder reporting time from **~1 hour to less than 5 minutes**
- Conducted **API contract and reliability testing** for distributed microservices, lowering customer-facing service failure incidents by **20%**
- Designed **integration and end-to-end test suites** covering auth expiry, session lifecycle, and multi-tenant access edge cases, improving **critical-path defect detection by 30%** pre-release
- **Mentored 4 newly joined** engineers, providing **5** lab demonstrations and **10+** walkthrough of different cloud-based products, reducing onboarding ramp time from **~4 weeks to ~10 days**

**Fullstack Developer Intern**

Acies Consulting LLP, Mumbai, India

Aug 2021 – Jan 2022

- Optimized a **stateless Django backend** enabling dynamic connections across **MySQL, PostgreSQL, Redis, and Parquet** stores, supporting customers who want different databases as storage
- Implemented an automated **financial data ingestion pipeline** using the **Yahoo Finance API**, improving reporting turnaround time and reducing manual data preparation by **~20%**

**Graduate Learning Assistant**

Aug 2025 – Dec 2025

- Mentored **38 students** in C++ problem solving and debugging, improving their clarity in assignment approach and code structure, increasing the average score by **25%**
- Conduct lab sessions and provide descriptive grading feedback that increased understanding of evaluation criteria

## Projects

**Distributed MapReduce Compute Framework** - C++, gRPC, HDFS, AWS EC2

- Designed a distributed **MapReduce** framework (master + multi-threaded workers + reducer) for **large-scale text processing** using Ubuntu 22.04 LTS AWS EC2 instances
- Resolved **reducer-side lock contention** by introducing a double-buffered queue with fine-grained synchronization, reducing RPC blocking **~40%** and improving throughput **6–7x**
- Tuned batching and serialization parameters through **72 scaling experiments**, minimizing worker idle time by **25%** and achieving near-linear scaling up to **4 workers**

**Risk-Based Vaccination Prioritization System** - Django, Scikit-Learn

- Improved the standard eligibility decisions for vaccination by implementing a **Random Forest Model**, achieving **~85% predictive accuracy**, leading to more equitable vaccination sequencing
- Deployed the scoring engine behind **Django REST APIs**, enabling real-time eligibility decisions and reducing manual screening time for community health volunteers

## Technical Skills

C++ • Java • Python • JavaScript • Ruby on Rails • Django • gRPC • Selenium • Jenkins • MySQL • PostgreSQL • AWS (EC2) • MongoDB • Redis • Version Control • Automated Testing • cross-functional • problem-solving