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
- Engineered backend services for **Enlighten Manager & Admin** dashboards, aggregating hybrid data streams (**MongoDB** documents & **MySQL** relational tables) to serve **~5,000 DAUs**
- Developed dynamic business logic and API adaptations to accommodate solar regulatory requirements for expansion into **Europe**, **LATAM** and **Southeast Asia**, ensuring zero downtime during regional scaling
- Architected a **Selenium**-based UI regression suite, cutting manual QA effort by **50%** and significantly accelerating Agile release cycles
- Mentored 4 new engineers, creating labs that reduced onboarding ramp-up time from **4 weeks to ~10 days**.

Fullstack Developer Intern

Acies Consulting LLP, Mumbai, India   Aug 2021 – Jan 2022
- Optimized a **stateless Django** backend with dynamic connection routing for **MySQL, PostgreSQL, Redis, and Parquet**, enabling flexible storage configurations for diverse client needs
- Built an automated financial data ingestion pipeline using the **Yahoo Finance API**, accelerating reporting cycles and cutting 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%**
- Conducted lab sessions and provide descriptive grading feedback that increased understanding of evaluation criteria

Projects

[**Distributed MapReduce Compute Framework**](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 **6–7 times**
- Tuned batching and serialization parameters through **72 scaling experiments**, minimizing worker idle time by **25%** and achieving near-linear scaling up to **4 workers**

[**Personal Portfolio Website**](Personal Portfolio Website) — *Next.js, React, Tailwind, Vercel*
- Built a responsive, component-driven web portfolio with SSR/SSG support and optimized asset pipelines **(95+ Lighthouse score**)
- Optimized performance using GSAP/Framer-Motion and dynamic, hydration-safe components, cutting layout shift by **40%** and notably improved load smoothness across devices

[**Risk-Based Vaccination Prioritization System**](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 • Next.js • Tailwind