

Rachit Pokhrel

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SUMMARY

Backend-focused software engineer with 3 years of professional experience building and scaling distributed services, followed by four years of doctoral research in multi-physics simulations. Brings strong fundamentals in algorithms, experimentation, and technical writing to product engineering. Shipped services now handling 4M+ daily requests; comfortable owning problems end-to-end, from design docs to on-call.

TECHNICAL SKILLS

Languages: Python, Swift, TypeScript, SQL, Java

Infrastructure: AWS, Docker, Kubernetes, Terraform, PostgreSQL, Redis, Kafka

Practices: CI/CD, distributed systems design, A/B testing, performance profiling, code review

PROFESSIONAL EXPERIENCE

Software Engineer, Swipr Inc. Aug 2016 – Aug 2019

Kathmandu, Nepal

- Built and maintained backend services in Python (Django) supporting core product features used by 100K+ monthly active users.
- Designed RESTful APIs consumed by web and mobile clients, improving response times by 40% through query optimization and caching (Redis).
- Migrated a legacy Python 2 codebase to Python 3 across 15+ internal services with zero production incidents.
- Automated data pipelines using Python and Airflow, reducing manual reporting work by 20+ hours per week.
- Wrote unit and integration tests with pytest, raising backend test coverage from 45% to 85%.
- Collaborated with product and QA teams in an Agile/Scrum environment, delivering features across 2-week sprint cycles.
- Integrated third-party APIs (payment processors, email/SMS providers) into Python microservices, expanding platform functionality.
- Set up CI/CD pipelines (Jenkins/GitHub Actions) for Python services, cutting deployment time from hours to minutes.

RESEARCH EXPERIENCE

Doctoral Researcher, Computational Science (ABD) Sep 2019 – May 2025

Louisiana Tech University

- Designed and implemented custom C++ kernels within the MOOSE multi-physics framework, running large-scale simulations on the LONI supercomputer
- Applied performance profiling and parallel job scheduling
- Built and maintained an open-source simulation framework (in C) still used by the lab
- Completed all coursework and passed qualifying and candidacy exams; transitioning to industry to focus on shipping production systems at scale.
- Taught Trigonometry and College Algebra to freshmen class for a full academic year.

EDUCATION

Doctor of Philosophy in Applied Mathematics | Louisiana Tech University, Ruston

ABD (All But Dissertation) · GPA: 3.50 / 4.0 · Concentration: CAM (Computational and Applied Modeling)

Master of Science in Mathematics | Louisiana Tech University, Ruston

Graduated May 2022 · GPA: 3.50 / 4.0 · Concentration: Applied Mathematics

Master of Science in Engineering and Technology Management | Louisiana Tech University, Ruston

Graduated August 2015 · GPA: 3.20 / 4.0 · Concentration: Technology Management

Bachelor of Science in Chemical Engineering | Louisiana Tech University, Ruston

Graduated May 2010 · GPA: 3.30 / 4.0
