

Ayush Pandey

Systems Engineer

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Skills

General Skills

Graph databases
Non-relational data models
Distributed systems
Concurrent programming
Consistency protocols
Storage systems
CRDTs
Formal methods
Database design and architecture
System Design

Tools

Neo4j
Gremlin
NoSQL
PostgreSQL
Redis
Docker
Git
UNIX environnement

Languages

Java
C++
Erlang, Elixir
Python
C
Bash

Speaking
Hindi -Native
English - Fluent
French - Conversational

Experience

- 2022-2025 **PhD Researcher**, LIP6, Sorbonne Université (UPMC), Paris
- Thesis: **CALock: topological multi-granularity locking in hierarchies**
 - Designed, implemented and verified a new locking protocol for parallel threads over hierarchical data. CALock identifies an optimal grain size for locking in a hierarchy of data structures.
 - Implemented and verified several thread synchronization protocols in java and c++ as well as database implementations in TinkerPop as PoC. Performed benchmarks for performance evaluation.
 - Collaboration in projects involving **industry partners and research labs**. Ongoing collaboration with Telecom sudParis under the project VERDI to design, implement and formally verify a distributed graph database. Second ongoing work within LIP6 on the specification and verification of a distributed key value store.
- 2021-2022 **Research Intern**, LIP6, Sorbonne Université (UPMC), Paris
- **Implementation of a cache for a CRDT datastore**. Worked on designing and implementing an in memory cache and checkpoint store for AntidoteDB.
 - Undertook performance benchmarking in a distributed environment with Riak Bench.
 - Fixed several bugs in the general implementation of AntidoteDB and achieved a 40% performance improvement in the read path.
 - **Tech Report**: Persisting the AntidoteDB Cache
- 2020-2021 **Full stack Web Engineer**, LernFair e.v., Remote, Germany
- Worked on the development of an online learning platform for school students to facilitate remote learning during Covid-19 lockdowns.
 - Implemented the frontend in ReactJS and the backend in NodeJS and GraphQL along with alpha and beta testing of features.
 - Implemented the service layer in a microservice architecture with content delivery through REST APIs.
- 2020-2021 **Research Assistant**, German Center for AI (DFKI), Kaiserslautern, Germany
- Developed a custom tool for visual graph editing tool with automated graph structuring and enforcing P&ID constraints on nodes and edges of the graph in AngularJS and D3.js.
 - Writing test suites for performance. testing on peak loads and high data volumes with python.
- 2017-2019 **Software Engineer**, Newgen Software Technologies, India
- Development of custom workflow, content management and business process automation solutions for major Banks, Health care providers and insurance companies.
 - Developed custom dashboards and reports for telemetry and report generation.
 - Delivered technical training and support to business clients in the asia pacific region.

Education

- 2025 **PhD in Distributed systems**, LIP6, Sorbonne Université (UPMC)
- 2022 **Master in CS, Software Engineering**, TU Kaiserslautern, Kaiserslautern, Germany
- 2017 **Bachelor of Technology**, APJ Abdul kalam technical university, India