

# Ayush Pandey

Systems Engineer

75013 Paris

07 81 49 75 76

ayushpandey8439@gmail.com

in [www.linkedin.com/in/ayushpandey8439/](https://www.linkedin.com/in/ayushpandey8439/)

## 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

## Hobbies

Running, Reading, Cooking, Karaoke