

AYUSH BAJPAI

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PROFESSIONAL SUMMARY

Entry-level Software Engineer with strong foundations in **Core Python, Object-Oriented Programming, DBMS, and Data Structures & Algorithms**. Hands-on experience **building scalable backend systems, secure applications, and real-time data pipelines following SDLC and Agile practices**. Passionate about continuous learning, automation, and delivering production-ready software solutions aligned with business needs.

SKILLS

Programming Languages: Python, SQL, C, C++

Backend & APIs: RESTful API Design, JWT Authentication, MySQL

Development Tools: Git, GitHub, Linux, Postman

Development Practices: Code Reviews, Documentation, Debugging & Logging, Agile/Scrum

CS Fundamentals: Data Structures & Algorithms (DSA), Operating System (OS), Object Oriented Programming (OOP), Database Management System (DBMS), Software Development Lifecycle (SDLC)

PROJECTS

Auto Brightness Windows

[\(GitHub | Download Link\)](#)

Python, OpenCV, Numpy, Tkinter, Pystray, Threading, Color Theory

- Designed and deployed a **Python-based script** and executable to enable **adaptive brightness on Windows systems lacking native support**.
- Implemented **multithreaded Python application** with **structured logging and error handling**.
- Leveraged **OpenCV for camera input** and real-time ambient light estimation, reducing manual brightness adjustments by **~90%** and enhancing user comfort.

Aethern - Adaptive Spaced Repetition Scheduler (SM-2)

[\(GitHub\)](#)

C++, CMake, Ninja, vcpkg, SM-2 Algorithm, Cryptography, Data Structures, System Design

- Designed a **secure, persistent spaced-repetition scheduler** using the **SM-2 algorithm** for optimized long-term memory retention.
- Implemented **AES-256 encryption** with Argon2 password hashing to protect sensitive user data.
- Engineered a **scalable C++ architecture** using **efficient data structures** (hash maps, vectors) with zero plaintext persistence.
- Implemented **end-to-end encrypted local storage** using **XSalsa20-Poly1305 (AEAD)**

IoT-Based Real-Time AQI Monitoring System

[\(Link\)](#)

ESP32, Arduino IoT Cloud, Python/Android, Sensors (MQ135, DHT11), Data Streaming

- Engineered a **real-time data ingestion pipeline** streaming air quality, temperature, and humidity signals from **edge devices (ESP32)** for 24/7 monitoring.
- Designed a **continuous telemetry flow** with **automatic cloud updates** every 10 seconds, reducing manual data collection by 95%.
- Built a **client application** with **live dashboards and time-series visualizations**, maintaining <2s end-to-end latency from sensor to UI.

EDUCATION

B.Tech in Artificial Intelligence and Machine Learning

2022-2026

G.L. Bajaj Institute of Technology and Management

Current CGPA - 7.74

Class XII (CBSE) - 85.6%

2021-2022

Class X (CBSE) - 85.6%

2019-2020

CO-CURRICULAR & ACHIEVEMENT

- Design & Media Team Lead**, departmental club - delivered **50+ digital assets** at a **100% on time delivery**, demonstrating leadership, ownership and accountability.
- Led 10+ robotics events** from **hosting to execution**, overseeing **planning, scheduling and design**.
- Coached a Semi Finalist, National-Level India College Chess Championship** hosted by **chess.com**, demonstration teamwork, mentorship and analytical thinking.
- Rated **1900+** on **Leetcode Contests** as a **Leetcode Knight**