

Swadhin Biswas

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Professional Summary

Backend Engineer and Machine Learning Engineer with experience designing scalable back-end systems, data pipelines, and deploying ML/DL models into production. Skilled in bridging the gap between research and deployment by building reliable APIs, distributed crawlers, and ML-powered applications. Strong background in Python, cloud infrastructure, and open-source software development.

Technical Skills

Programming: Python, SQL, Rust (basic), JavaScript (basic)

Backend: FastAPI, Flask, Django, REST APIs, AsyncIO, SQLAlchemy

Machine Learning: PyTorch, TensorFlow, Scikit-learn, Pandas, NumPy

Data Science: Feature Engineering, Model Evaluation (Precision, Recall, F1, AUC-ROC, PR Curve), Data Pipelines

Databases: PostgreSQL, MySQL, MongoDB, Redis, Vector Databases

Cloud & DevOps: AWS, Docker, Kubernetes (basic), GitHub Actions (CI/CD), Linux

Other Tools: Streamlit, Kafka (basic), Git

Experience

The Boring Rats (Open Source Initiative)

Founder & Lead Developer

Dhaka, Bangladesh

Jan 2024 – Present

- Founded an open-source development group focused on production-ready tools for web crawling, data analysis, and backend infrastructure.
- Built scalable crawling infrastructure handling millions of URLs with batch processing and real-time analytics.
- Developed open-source projects with GitHub stars and active contributors.
- Established development workflows, CI/CD pipelines, and coding standards for collaboration.

Independent Software Development

Software Engineer & ML Deployment Specialist

Remote

Apr 2024 – May 2025

- Developed backend services and data pipelines using Python, Docker, and cloud environments.
- Deployed and optimized ML/DL models in production with focus on scalability, API integration, and monitoring.
- Implemented CI/CD workflows for backend and ML projects, reducing deployment errors and improving reliability.

Selected Projects

RatCrawler – Multi-Source Search Engine & Analytics

Python, FastAPI, SQLAlchemy, Streamlit, aiohttp, BeautifulSoup4

Aug 2025 – Present

- Engineered a distributed web crawler handling 50+ URLs per batch with fault tolerance and persistence.
- Implemented backlink analysis (PageRank, domain authority) and ML-based spam detection (84% crawl success).
- Developed real-time analytics dashboard integrating Google Trends and Twitter/X APIs.
- Integrated SQLite and Turso Cloud with async HTTP engine, connection pooling, and failover.

Roast Programming Language – Python-Inspired Compiled Language

Rust, LLVM, ANTLR, Python

Jul 2025 – Present

- Designed and implemented a Python-like programming language with LLVM machine code generation.
- Built compiler toolchain with custom lexer, parser, AST, and runtime supporting `async/await`.
- Integrated Python package interoperability and created a package manager for Roast modules.

Education

Daffodil International University

B.Sc. in Computer Science and Engineering

Dhaka, Bangladesh

Expected Apr 2026

- Relevant Coursework: Data Structures, Algorithms, Database Systems, Machine Learning, Software Engineering

Publications

- **Sounds & NLP:** A Unified Denoising and Adaptation Framework for Self-Supervised Bengali Dialectal ASR (arXiv)

Activities & Interests

- Active open-source contributor with focus on backend systems, ML deployment, and compilers.
- Hobbies: Movies, Anime, and Technology Exploration.