Shulabh Bhattarai

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EDUCATION

DePauw University — **B.A. Computer Science, Minor in Data Science** (CGPA 3.6)   **May 2026**

- Dean's List (3x)
- Teaching Assistant – Intro to CS (Java), Computer Systems
- DePauw AI Club – Co-founder, President

Relevant Coursework: Data Structures & Algorithms • Machine Learning • Data Mining • iOS App Development • Web Programming

TECHNICAL SKILLS

Languages — Python • C++ • Java • JavaScript / TypeScript • Swift • SQL

Cloud & DevOps — AWS • Docker • Firebase (Auth, Firestore, Functions) • Git / GitHub Actions • PostgreSQL

Frameworks — React • Vue 3 • SwiftUI • Node.js / Express • FastAPI • Django REST

ML & Data — PyTorch • TensorFlow • scikit-learn • Hugging Face • Pandas • NumPy

WORK EXPERIENCE

COGNIZENX — Full Stack Developer (DePauw Neuroscience Department)   **August 2025 - Present**
React Native • TensorFlow • MongoDB • JavaScript • Express.js • Github Actions

- Led a team of **3** to deploy a React Native app for Dementia care with personalized question generation & accessibility-first design.
- Engineered a personalization ML engine using transformers & behavioral analytics, generating adaptive trivia across **8**+ categories.
- Implemented user-wise cognitive performance tracking, added puzzle modules & refactored API calls backend-side with rate limiting.

TOGGLECORP — Software Engineering Intern   **Jun 2024 - Aug 2024**
React • Django REST • TensorFlow • PostgreSQL • Docker

- Developed a dashboard to visualize **200K**+ consumers' peak purchasing trends across **5** regions, boosting reporting efficiency by **39%**.
- Built and optimized PostgreSQL-backed REST APIs, reducing data latency by **47%** for **5K**+ accounts across **3**+ business segments.
- Applied K-means clustering, neural networks for customer segmentation and forecasting, achieving **74%** overall prediction accuracy.

DOKNOCK — Software Engineering Intern   **Jun 2023 - Aug 2024**
React • Node.js • Flask • PostgreSQL • JWT / OAuth

- Engineered a full-stack medical web platform using React and Flask, enabling **500**+ users to manage health records and appointments.
- Implemented **4**+ scalable Node.js microservices with PostgreSQL, reducing data sync latency by **37%** across internal clinical systems.
- Optimized role-based access control (RBAC) using JWT and OAuth, enabling secure access for patients, providers & administrators.

PROJECTS

Visa Guardian (Aug 2025) — *RAG • Ollama • React • Fast API • Node.js • BeautifulSoup4*   **Github URL**

- Developed a RAG assistant with FAISS vector search and an LLM, instantly answering visa queries from **50**+ official documents.
- Built a scalable Python pipeline using BeautifulSoup4 and transformers, indexing **54K**+ immigration law lines with **95%** + accuracy.

StudyAI (May 2025) — *SwiftUI • FastAPI • PyTorch • Hugging Face Transformers • Tesseract OCR • PDFMiner*   **Github URL**

- Engineered an iOS app that converts speech, text, and PDFs into AI-driven summaries and flashcards using a modular NLP backend.
- Integrated Firestore–Core Data sync and optimized performance, achieving p95 latency **<300** ms with zero crashes in local testing.

Hybrid Recommender System (Sept 2024) — *Python • Scikit-learn • SciPy • Seaborn*   **Github URL**

- Processed **12K** animes & **6M** ratings; applied clustering & item-based collaborative filtering to recommend **top-20** titles to **70K** users.
- Evaluated on an **80-10-10** split and peer test cohort, achieving **37%** Precision@10, **0.94** RMSE, and demonstrating further scalability.

RESEARCH AND TECHNICAL PAPER

Undergraduate Research – Agricultural Disease Modeling & Biosecurity | (May 2025 - Present)

- Assessing **dual-use**: how generative models could enable agro-bioweapon design while supporting a healthy agricultural environment.

Academic Paper – Customer Segmentation Tutorial Using Hierarchical Clustering | (Dec 2024)   **Github URL**

- Authored a reproducible tutorial on data exploration, standardization, and Ward-linkage clustering for a **200**-customer retail dataset.