

# Shulabh Bhattarai

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## EDUCATION

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

May 2026

**Awards:** Top 3 CS Teaching Assistant • Best Performing Intern @Togglecorp • Dean's List

**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)

Aug 2025 - Present

- Directed a **3-member** team to ship a **React Native + Express.js** Dementia app, enabling accessible care, boosting adoption by **45%**
- Enhanced **TensorFlow** transformer **ML** with analytics to deliver adaptive trivia in **15+** categories, improving engagement by **53%**
- Scaled backend with **MongoDB**, puzzles/games, and API refactors with rate limiting, cutting response time **41%** via GitHub Actions

**TOGGLECORP** — Software Engineering Intern

Jun 2024 - Aug 2024

- Built **React + Django REST + PostgreSQL** dashboard for **200K+** consumer trends in **5** regions, boosting **39%** reporting efficiency
- Optimized APIs with **PostgreSQL + Docker**, cutting latency by **47%** across business segments, enabling smoother **5K+** account ops
- Applied **K-means** clustering, **neural networks** for customer segmentation & forecasting, achieving **74%** overall prediction accuracy

**DOKNOCK** — Software Engineering Intern

Jun 2023 - Aug 2024

- Developed **React + Flask + PostgreSQL** medical app for 500+ users, enabling secure record access & boosting appointment usage
- Designed 4+ **Node.js** microservices with **PostgreSQL**, cutting **37%** sync latency across clinical systems & improving data reliability
- Strengthened **RBAC** with **JWT + OAuth**, ensuring scalable compliance for patients, providers, and admins with 0 security breaches

## PROJECTS

**Visa Guardian** (Aug 2025)

[Github URL](#)

- Built a **React + FastAPI RAG** assistant with **Ollama + FAISS**, answering **50+** visa queries from **54K+** legal lines at **95%** accuracy
- Engineered a **Python + BeautifulSoup4 + Transformers** pipeline to scrape, parse, and index immigration law into structured vectors

**StudyAI** (May 2025)

[Github URL](#)

- Developed a **SwiftUI iOS** app with **FastAPI + Hugging Face**, converting speech, PDFs, and text into **AI** flashcards + summaries
- Integrated **Firestore** + Core Data sync and optimized **Tesseract OCR + PDFMiner**, achieving **p95** latency <**300** ms with zero crashes

**Hybrid Recommender System** (Sept 2024)

[Github URL](#)

- Applied **Python + Scikit-learn + SciPy** clustering & collaborative filtering on **12K** animes + **6M** ratings, recommending **top-20** titles
- Evaluated on **80-10-10** split with Seaborn metrics, hitting **37% Precision@10** and **0.94 RMSE**, demonstrating scalable real-world use

## LEADERSHIP

**Co-Founder / President – DePauw AI Club**

Aug 2025 - Present

- Organized **AI** workshops, led **30+** members, and advanced campus-wide literacy on **artificial intelligence** ethics and practical tools

**ML Instructor / Treasurer – DePauw Data Science Club**

Aug 2023 - Present

- Co-led Data Science Club, hosting competitions, mentoring peers & applying **Python + ML** tools to solve interdisciplinary problems

## RESEARCH AND TECHNICAL PAPER

**Undergraduate Research – Agricultural Disease Modeling & Biosecurity** | Ongoing

- 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**

[Github URL](#)

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