

# BISHWA PRASAD GHIMIRE

AI & Machine Learning Enthusiast | Deep Learning Researcher | BSc CSIT Student

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## SUMMARY

BSc CSIT student at Tribhuvan University specializing in Artificial Intelligence, Machine Learning, and Computer Vision. Experienced in designing and training deep learning models using PyTorch and Scikit-learn. Conducted research on Nepali handwritten character recognition using CNN across 58 classes, including character-wise performance evaluation. Passionate about developing intelligent systems and actively seeking AI/ML research and internship opportunities.

## EDUCATION

### BSc in Computer Science & Information Technology (BSc CSIT)

Tribhuvan University · Butwal Multiple Campus

2024 – Present

Currently: 4th Semester

**Relevant Courses:** Machine Learning, Deep Learning, AI, Data Structures, Algorithms, Database Systems

## PROJECTS

### Nepali Handwritten Character Recognition — CNN

2025

Research Project · PyTorch

- Designed CNN to classify 58 Nepali handwritten character classes with **98.92% accuracy**.
- Full pipeline: data collection, preprocessing, augmentation, train/val/test splits.
- Character-wise accuracy analysis to identify weak classes and guide improvements.
- Hyperparameter tuning: learning rate, batch size, dropout for better generalization.

**Tech:** Python, PyTorch, NumPy, Matplotlib, OpenCV

[GitHub](#) →

### Titanic Survival Prediction

2025

Supervised ML · Scikit-Learn

- Built ML pipeline with data cleaning, EDA, and feature engineering
- Trained and compared Logistic Regression, Decision Tree, Random Forest with cross-validation.

**Tech:** Python, Pandas, Scikit-Learn, Matplotlib, Seaborn

[GitHub](#) →

### Movie Recommendation System

2025

Collaborative & Content-Based Filtering

- Implemented collaborative and content-based filtering using cosine similarity
- Analyzed user–movie interaction data to generate personalized suggestions.

**Tech:** Python, Pandas, Scikit-Learn, NumPy

[GitHub](#) →

### NLP Text Classification Pipeline

2025

Natural language Processing

- End-to-end NLP pipeline: text cleaning, TF-IDF vectorization, classification.
- Developed text similarity and classification models for real-world datasets.

**Tech:** Python, Scikit-Learn, NLTK, Pandas, Transformers

[GitHub](#) →

## RESEARCH EXPERIENCE

### Undergraduate Research — Nepali OCR / Computer Vision

Independent Research · Tribhuvan University

- Investigating CNN architectures for Devanagari script recognition across 58 classes.
- Exploring augmentation strategies and architecture tuning to boost per-class accuracy.
- Gaining experience in experimental analysis, hyperparameter tuning, and academic research methodology.

## KEY ACHIEVEMENTS

### Deep Learning Model Optimization

Improved CNN performance to **98.92% accuracy** through augmentation tuning and hyperparameter optimization.

### Large-Scale Dataset Handling

Processed and structured 96,000+ handwritten samples for multi-class classification across 58 categories.

### Character-wise Performance Analysis

Conducted detailed per-class accuracy evaluation to identify imbalance and improve minority-class generalization.

## TECHNICAL SKILLS

**Languages:** Python, SQL

**Libraries & Frameworks:** NumPy, Pandas, Matplotlib, Seaborn, Scikit-learn, PyTorch, Transformers

**Tools & Platforms:** Jupyter Notebook, Git, GitHub, Google Colab, VSCode

### Machine Learning & Deep Learning:

- CNN Architecture Design
- Model Training & Evaluation
- Data Preprocessing Pipelines
- Hyperparameter Tuning
- Exploratory Data Analysis
- Academic Research Methods

## TRAINING & SELF-STUDY

**Machine Learning** — Andrew Ng

Coursera · In Progress

**Deep Learning** — Fast.AI

Self-study · Ongoing

## LANGUAGES

**Nepali** — Native **English** — Fluent