

NETRA KOIRALA

Software Developer | MSc CSIT Researcher | Machine Learning & Geospatial AI

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PROFESSIONAL SUMMARY

Software developer and MSc CSIT candidate with experience spanning application development, web technologies, databases, and secondary-level computer science education. Hands-on background in C#/.NET, Python/Django, PHP/Laravel, JavaScript/React, REST APIs, SQL databases, and Git. Current academic interests focus on machine learning, remote sensing, GIS, and environmental AI, with applied work in forest health, biodiversity, and environmental prediction.

TECHNICAL SKILLS

Programming: Python, C, C++, Java, C#, JavaScript, PHP, HTML/CSS

Frameworks / Web: Django, Django REST Framework, React, Vite, Tailwind CSS, Laravel, .NET / WinForms, REST APIs

Data / AI: Machine Learning, scikit-learn, SVM, KNN, Random Forest, XGBoost, data analysis

Geospatial: Remote Sensing, GIS, satellite image analysis, Sentinel-2, Landsat, spatial analysis

Databases / Tools: MySQL, MariaDB, Microsoft SQL Server, Microsoft Access, Git, Visual Studio, Crystal Reports

Platforms / Concepts: Windows, Linux, macOS, OOP, DBMS, SDLC, networking, agile/Scrum

PROFESSIONAL EXPERIENCE

Software Developer | Ara Tech Solution, Urlabari, Morang

Dec 2020 - 2023

- Designed, developed, tested, and maintained application features; implemented bug fixes and supported end users.
- Coordinated with stakeholders and team members throughout the development process and helped manage day-to-day technical operations.
- Worked across web/application development and database-driven systems, building practical solutions for organizational needs.

Programmer / C# Developer | Code Studio Solutions, Damak, Nepal

Jan 2019 - Nov 2020

- Designed, implemented, tested, and maintained C# application features within an agile/Scrum development workflow.
- Collaborated with cross-functional team members, supported users, and improved code quality through refactoring and maintenance.
- Contributed to software projects using C#, Visual Studio, and SQL-based databases across the development lifecycle.

Computer Science Teacher | Shree Janata Secondary School (Full-time) & Everest

Feb 2020 - Jan 2024

Secondary School (Part-time), Kosi Zone, Nepal

- Taught Grades 11-12 Computer Science aligned with the NEB curriculum, covering programming, web technology, and DBMS.
- Prepared students for internal and board examinations and guided mini-projects using HTML, CSS, C, and MySQL.
- Integrated practical software-development experience into classroom instruction and project-based learning.

Computer Science Teacher | Shree Pagoda Model Secondary English School, Pathari

Oct 2015 - Apr 2018

Shanishchare

- Delivered foundational computer science instruction and designed interactive assignments and class projects.
- Emphasized problem-solving, logical thinking, computer applications, and student engagement.

EDUCATION

MSc Computer Science & Information Technology (MSc CSIT) | Tribhuvan University

2025 - Present

- Central Department, Kirtipur, Kathmandu

- Graduate study in advanced computing with research interests in machine learning, remote sensing, GIS, image processing, data mining, and cryptography.

BSc Computer Science & Information Technology (BSc CSIT) | Tribhuvan University

Completed

- Shreeyantra College, Damak, Jhapa

- Built a foundation in software engineering, programming, web technologies, databases, networking, and applied computing.

RESEARCH PROFILE

Research interests center on applied machine learning and geospatial computing for environmental problems, particularly remote sensing, GIS, forest health, biodiversity, and environmental prediction. Interested in combining reproducible data workflows, satellite imagery, spatial features, and predictive models to support practical decision-making.

RESEARCH & ACADEMIC PROJECTS

Forest Health Monitoring Using Remote Sensing & Machine Learning | Research direction

- Exploring a geospatial ML workflow that uses satellite imagery, preprocessing, spectral/spatial features, and predictive models for forest-health assessment.

Tools / concepts: Remote sensing, GIS, Sentinel-2/Landsat, spatial features, machine learning

Amphibian Habitat Prediction | Academic ML project

- Applied machine-learning classification to acoustic and environmental data, combining MFCC-based sound features with vegetation/environmental variables.

Tools / concepts: MFCC, SVM, KNN, biodiversity data

Kathmandu Air Quality Prediction | Academic ML project

- Analyzed PM2.5, weather variables, seasonal patterns, and environmental data for machine-learning-based air-quality prediction.

Tools / concepts: PM2.5, NASA POWER, environmental data, machine learning

SELECTED SOFTWARE & WEB WORK

SP Medicare - spmedicare.com.np

- Live healthcare / skincare website with structured product, brand, and category presentation.

Premier Property Inspection - preminspection.com

- Live service-business website presenting inspection services and customer-facing business information.

Natural Science Society Nepal - nssnepal.org.np

- Live conservation and research organization website supporting projects, publications, news, and outreach.

NEPSE AI

- Local personal prototype exploring stock-market analysis, watchlists, alerts, and data-driven workflows using Python/Django, REST APIs, React, and MySQL.

ADDITIONAL PROJECT

Result Management System | C# / SQL Server

- Led a four-member student team to build a result-management application for student records, marks, report generation, mark sheets, and performance charts.

Tools / concepts: C#, Microsoft SQL Server, Visual Studio 2019

PROFESSIONAL DEVELOPMENT & ADDITIONAL INFORMATION

- Completed a 7-day Android Development workshop organized by the Shreeyantra IT Club.
- Participated in personality development and radio programme presentation training.
- Languages: Nepali, English, and Hindi.
- Professional interests: software engineering, machine learning, geospatial AI, remote sensing, environmental monitoring, and biodiversity conservation.