

# Diwas Pandey

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## Experience

### Graduate Research Assistant

WASHINGTON STATE UNIVERSITY | SALMON CREEK, WASHINGTON

08/2022 - Present

- Thesis: **Unlocking Identity: Robust Individual Identification through Electrocardiogram Analysis**
- Submitted a patent application for the project, currently awaiting approval
- Led research on individual identification through ECG data, focusing on optimizing Pan-Tompkins algorithm for R-peaks detection and enhancing pre-processing techniques
- Implemented methodologies from research papers evaluating outcomes in comparison to established methods
- PlexNet: Utilized transfer learning and ensemble methodologies to outperform CNN-based approaches
- Further research involves Python analysis on diverse activities to refine Pytorch model

### Team Lead, Machine Learning Engineer Level II

BOTTLE TECHNOLOGY, PVT. LTD. | JHANSIKHEL, LALITPUR NEPAL

11/2020 - 06/2022

- Led a research project on enhancing Nepali Citizenship data, employing OCR and NER techniques
- Implemented Smart Advertisement system for ad viewership analysis, utilizing pedestrian and vehicle detection
- Released '**Nepali-to-Roman**' PyPI package, facilitating Nepali to English conversion for OCR, Achieved 15k+ downloads
- Developed Image Alignment, OCR, and Transliteration modules API, deployed on EC2 and Docker.

### Founder Admin & Content Writer

AIHUBPROJECTS.COM

11/2019 - Present

- Authored a book on Machine Learning algorithms and Python with scratch implementations
- Published tutorials on Python, ML, NLP, and Computer Vision

## Education

### M.S. in Computer Science | Washington State University

SALMON CREEK, WASHINGTON

08/2022 - 05/2024 (expected)

- Current GPA: 4.00
- Relevant Courses: Artificial Intelligence, Machine Learning, Neural Network, Computer Vision

### B.E. in Computer Engineering | Tribhuvan University, Nepal

KATHMANDU, NEPAL

10/2016 - 05/2021

- National Topper & Full Scholarship Awardee (2016-2021)
- Capstone Project I: Real-Time Number Plate Recognition System using Computer Vision
- Capstone Project II: Doodle to Photorealistic Traditional Image Generation using Gau-GAN

## Top Freelance ML Projects

### Research : Watersheds Extraction From Satellite Images Using Attention U-Net

USED PYTHON, OPENCV, U-NET, AND ATTENTION U-NET ON 18,000+ SATELLITE IMAGES

- Conducted research on watershed extraction using Attention U-Net and developed a balanced augmentation-based deep learning method
- Utilized Sentinel-2 satellite photos for the dataset, improving accuracy and computational efficiency
- Project contributes to environmental assessment, monitoring changes due to global warming, and identifying water pollution sources

### Fake License Plate Generation

PYTHON, OPENCV, GAN | GENERATED ANNOTATED LICENSE PLATE IMAGES USING GANS

- Utilized Generative Adversarial Networks (GANs) to generate and augment annotated license plate images
- Implemented YOLO for vehicle detection, utilized ROI for License Plate cropping, and applied Mean-SD for character segmentation

## Research: Emotional state Classification from EEG Data

ALGORITHM USED: RANDOM FOREST, CNN, LSTM, RNN

- Executed thorough data cleaning, proficiently visualized insights, and applied data augmentation techniques on EEG dataset
- Achieved an 85% accuracy rate on Recurrent Neural Network (RNN) and recommended it as the optimal choice.

## Technical Proficiencies

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<b>Programming Language</b>	Python, C++
<b>AI Tools</b>	PyTorch, OpenCV, Scikit-learn, Numpy, Pandas, Matplotlib
<b>Expertise</b>	Computer Vision, Deep Learning, Machine Learning Algorithms
<b>AWS Services</b>	EC2, S3, Sagemaker, AWS Rekognition, AWS Lambda
<b>IDE</b>	Visual Studio, Jupyter Notebook, Google Colab, Sagemaker
<b>Back-end</b>	Flask API, FAST API
<b>Languages</b>	English, Nepali
<b>Operating System</b>	Ubuntu 22.04, Windows 11
<b>Non Technical Skills</b>	Critical Thinking, Communication, Teamwork, Problem-Solving, Time Management

## Volunteer Experience

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2020	<b>Outreach Partner</b> , Wonderland AI Summit, Belgrade, Serbia
2020	<b>Media Partner</b> , Quantum Hack, Kathmandu, Nepal
2019	<b>Tech Supporter</b> , VIT Hack, Vellore, India
2019	<b>Online Partner</b> , Everest Hackathon, Kathmandu, Nepal
2019	<b>Online Partner</b> , BKNS Techno Fest, Kathmandu Nepal