# Kshitiz Poudel

Email: Kshitizpoudel18@gmail.com
Portfolio: poudelkshitiz.com.np
Mobile: +977 9862547949
Github: https://github.com/Zaxis018
LinkedIn: linkedin.com/in/kshitizpoudel18/

## Education

- **Bachelors in Computer Engineering** — October 2019 - May 2024
  *Thapathali Campus, Institute of Engineering, Tribhuvan University* — *Kathmandu Nepal*
  ***Relevant Coursework:*** *Artificial Intelligence, Digital Signal Processing , Embedded Systems , Instrumentation , Microprocessors , C Programming , Computer Networking, Operating Systems, Object Oriented Programming (C++), Engineering Mathematics*

- **High School** — June 2017 - June 2019
  *Skyrider English Boarding School* — *Chitwan, Nepal*
  ***Coursework:*** *Mathematics, Physics, Chemistry, Biology ,English , Nepali*
  *Recieved Full Scholarship for study period. Qualified among top 25 candidates nationally for International Math Olympiad*

## Skills Summary

- **Languages**: Python, C, C++, JavaScript, SQL, Bash, Matlab
- **Frameworks**: PyTorch, Scikit-Learn, TensorFlow, Keras, Numpy, Pandas, Django, Flask, Postman
- **Tools**: Git, Github , Docker , Linux , SQLite , Visual Studio Code
- **Skills**: Machine Learning, Computer vision, Natural Language Processing, RPA, Data analysis, Data visualisation

## Experience

- **Quickfox Consulting** — Onsite
  *Python and AI Developer (Full-time)* — *April 2024 - Present*
  - **Nepali Handwritten OCR**: Pretrained and Fine-tuned existing OCR systems for Nepali Handwritten texts.
  - **Document understanding and Extraction**: Researched and finetuned Vision Language models to extract information from Documents intelligently
  - **Synthetic Data Generation**: Applied techniques for Synthetic data generation and automatic annotation for English and Nepali Documents to Train DONUT(end-to-end OCR model ) for incorporating in bot pipeline
  - **Automation Bots**: Built and deployed 2 Software bots for web automation using Selenium and Robot framework.

## Projects

- **FPGA Optimized Neural Architecture Search for CNNs**: (GitHub)
  - Collaborated on a team of 4 to compress CNN architectures to make them deployable on FPGA and IoT devices.
  - Achieved 14x compression with less than 4% loss in classification accuracy after applying quantization and pruning.
  - Constructed search space for CNN with different convolutional blocks, channel width ,depth ,activations, kernel size .
  - Applied neural architecture search techniques to find efficient CNN architectures for the target FPGA.
  - Deployed optimal architectures on FPGA.

- **Nepali News Classification with BERT**: (GitHub)
  - Worked on a team of 4 and used BERT for classifying Nepali news.
  - Scraped various sources for data collection and applied different data processing and cleaning techniques for Nepali text.
  - Deployed a backend web application using the Flask framework.

- **Dots And Boxes**: (GitHub)
  - Created the classic Dots and Boxes game in Python. Implemented 2-player mode and bot mode and customizable grid size

- **Machine Learning And Data Mining Projects**: (GitHub)
  - PCA from Scratch: Reduced dimensionality of Fashion Mnist images from 784 to 25 Dimensions which improved validation accuracy by 3% ,Applied Eigendecomposition of dataset's covariance matrix
  - ANN from Scratch : Built Neural Network to classify MNIST images and experimented different weight initializations
  - Nepali Text Classification: Used Naive Bayes algorithm for multiclass classification of Nepali News Categories.Performed Exploratory Data Analysis and explored Gaussian Naive Bayes, Laplacian Smoothing.
  - Market Basket Analysis: Implemented Apriori algorithm and rule generation for grocery item dataset

## Publications

- **FPGA Optimized Neural Architecture Search** : Manuscript in preparation

## Honors and Awards

- LOCUS 2024 winner for project Demonstration under Hardware Category - February 2024
- Logixtronix Final Year Project/Research Project Grant Winner - August 2023

## Certifications and Courses

**Machine Learning** - Stanford University, **AI Fellowship** - FuseMachines, **Winter AI School (ANAIS 2023)** - NAAMII, **CS50X** - Harvard University **CS50Python** - Harvard University, **Mathematics for Machine Learning** - Imperial College London , **Python Certification Level I and II** - RoboCorp ,**Mathematical Thinking** - Stanford University, **nand2tetris** - Hebrew University of Jerusalem , **Deep Learning with Pytorch** - Coursera