RAJAN GHIMIRE

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EXPERIENCE

City of Brampton, *STEM instructor* | Toronto, Ontario — Apr 2024 - Jul 2024

- Delivered engaging instruction in Computer Programming with Python (Levels 1 & 2) and Engineering and Coding with VEX IQ Robotics (Level 1), littleBits, micro:bit to students aged 10-14.

Trifecta Digi Media, *Digital Sales and Data Analyst* | USA(Remote) — Mar 2023 – Nov 2023

- Conducted data analysis, churn rate, and market basket analysis of a supermarket with 100+ branches.
- Boosted alcohol sales of the supermarket by 8.81% through data analysis of purchasing patterns and strategic promotion development over six months.

E.K. Solutions Pvt. Ltd., *Machine Learning Engineer* | Lalitpur, Nepal — Apr 2022 - Nov 2023

- Built a multilingual resume parser and semantic job matcher using LLaMA2, achieving a P@10 of 0.95 and P@20 of 0.92 for keyword extraction, and a MAP of 0.85 for job description matching.
- Applied quantization techniques to a semantic segmentation model, reducing size by 70% and increasing speed by 32% with only 2% accuracy loss.
- Built an invoice parser by fine-tuning Donut and table transformers on 30+ samples, recognizing table/cell structures, and extracting key-value pairs with 95% precision and 92% cell coverage, at 1.5 seconds per invoice.
- Developed an orientation-free YOLOv5 object detection model for creatinine and DiAcSpm in medical kits, achieving theta loss of 0.12556 and mAP of 0.13963; Manually collected data (3000+ images) with data augmentation.
- Developed an SQL database agent to convert human queries to SQL and generate tabular responses/Plotly visualizations; finetuned CodeLlama with LoRA on NSText2SQL + custom datasets, implemented table selection LLM using the same base CodeLlama + LoRA, database connector, prompt formatter, and text-to-SQL-to-viz pipeline.

E.K. Solutions Pvt. Ltd., *Natural Language Processing Trainee* | Lalitpur, Nepal — Dec 2021 - Apr 2022

- Conducted in-depth research and practical implementation of NLP tools and techniques, including NLTK, Spacy, and Word embeddings while mastering NumPy operations and applications.
- Implemented and trained various machine learning and deep learning models, such as PCA, K-Means, Logistic Regression, and Transformers (BERT, XLNET, GPT), using PyTorch and the Hugging Face library for sentiment classification and news classification.

SKILLS

Languages	Python, C/C++, C#, CUDA, CMake, Matlab, Git, Bash, LaTeX, Vim
Packages	Pytorch, PyTorch Lightning, Tensorflow, JAX, Sklearn, Numpy, Pandas, Matplotlib, Scipy, OpenCV, Open3D, PCL, Hugging Face, spaCy, fastText, NLTK, Gensim, LangChain, LlamaIndex, Plotly
Framework	Flask, FastAPI, Django, Unity, Streamlit, Gradio, RESTful API, Power BI
Databases	Spark, Hadoop, PostgreSQL, MySQL, MongoDB, Snowflake, Databrick, Kafka
DevOps	Git, Github, DVC, MLflow, SageMaker, Docker, Kubernetes, Jenkins, Airflow, Datadog, AWS, GCP, Azure
Tools	Microsoft Power BI, Data Analysis Expressions (DAX), Excel

EDUCATION

Lambton College, *Graduate Certificate In Artificial Intelligence & Machine Learning* | Toronto, Ontario — Jan 2024- Oct 2025

Relevant Courses: Data Science & Machine Learning, Big Data Fundamental, Artificial Intelligence, Data Visualization, Advance Python, Data Mining & Analysis, Natural Language Processing, Neural Networks & Deep Learning, Social Media Analytics

Kantipur Engineering College, *Bachelors in computer engineering* | Lalitpur, Nepal — Dec 2017- Apr 2022

Relevant Courses: Algorithms and Data Structures, Artificial Intelligence, Object Oriented Programming, Data Mining, Theory of Computation, Operating System, Database Management System

PUBLICATIONS

Ghimire R, Basnet R, Shahi R, Joshi S. "Leveraging Transliteration, Spelling Detection and Correction, Parts of Speech Tagging and Next Word Prediction for Effective Nepali Typing," in *KEC Conference Proceedings*, 2022, Vol. 4, pp 55–62, ISSN 2961 - 1695(Print), ISSN 2961 - 1997(Online).

Ghimire R, Basnet R, Maharjan R. "Eye Controlled Virtual Keyboard Using Convolutional Neural Networks," in *KEC Conference Proceedings*, 2021, Vol. 3, pp 237–242, ISBN 978-9937-0-9019-3.

PROJECTS

Chat2Plot | Innovative text-to-visualization system that uses Large Language Models (LLMs) to generate interactive charts and insights from tabular data, promoting seamless data analysis. Dec 2023 - Present

- Implemented a secure and language-independent architecture, using LLMs to generate declarative plot specifications in JSON format, ensuring secure and language-agnostic data visualization capabilities

CaptionCraft | Automatically generate subtitles, identify speakers, and translate content Nov 2023 - Dec 2023

- Created a pipeline with Wav2Vec and MBart for automated captioning, speaker diarization, and multilingual translation.
- Implemented pipeline for handling arbitrarily long videos, subtitle embedding, and YouTube integration

End-to-End Nepali OCR | Development of an End-to-End Nepali OCR System Using Differentiable Binarization and TrOCR for Handwritten Text Recognition Feb 2023 - Apr 2023

- Trained a DBNet text detection model in PyTorch, reaching high precision (91.79%) and recall (90.69%) with an IoU of 83.64%, Manually annotated handwritten notes to compile an extensive training dataset.
- Annotated data and fine-tuned TrOCR model on text recognition task.

NepaliLy | A Grammarly-like Tool for Enhanced Nepali Text Processing May 2021 - Jan 2022

- Developed transliteration with over 32,000 mappings, parts of speech tagging using BERT model with an F1 Score of 0.933, and a spell-checking database containing more than 500,000 stemmed words, and Pre-training BERT for next word prediction.

Papers Replication | Replications of ML/DL/CV/NLP papers. 2020 - 2024

- EfficientNet, LeNet, ResNet, Inception v1, Generative Adversarial Networks,Wasserstein Generative Adversarial, Super Resolution Generative Adversarial Networks, ESRGAN, Toward Multimodal Image to Image Translation, ConditionalGAN, CycleGAN, DCGAN, VAE, Vector Quantized Variational Autoencoders, Attention Is All You Need, Vision Transformer (ViT), DEtection TRansformer, YOLO, LSTM, ArcFace, FaceNet, OpenAI CLIP,Rajan,Rajan
- LLaMa2, LLaMA, GPT-2, BERT, LoRA: Low-Rank Adaptation of Large Language Models,SAM, RCNN,U-Net, Depplabv3, Depplabv3+

ACHIEVEMENTS

Scholarship:

- Merit-based scholarship from Tribhuvan University for 4 semesters in of Bachelor in Engineering.

Awards:

- Selected among the top 3 projects in QuantumHack (Project: Neural Pass password manager).
- Winner of LITEHACK 2020 for Hands-free operation of the computer.
- Secured first position in LITE IDEATHON 2020 for Eye Problem Detector.
- Secured first position in LITE Technical Exhibition 2019 for 3D Battle tank game on Unreal engine.

Extra-Curricular Activities

- Mentored 40 students at IIMS College over 4 days in a Natural Language Processing workshop, providing hands-on guidance and feedback on projects.
- Delivered a 3-day Machine Learning workshop to over 50 undergraduate students, providing comprehensive training and hands-on experience with ML concepts and tools.

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June 28, 2024

Christina Cain
Google
1600 Amphitheatre Parkway
Mountain View, CA 94043

Dear Christina Cain ,

I am writing to express my enthusiasm for the Machine Learning Engineer position at Google, as advertised on your careers page. With a robust background in artificial intelligence, machine learning, and software development, I am confident in my ability to contribute effectively to your team.

My educational journey at Lambton College, where I am pursuing a Graduate Certificate in Artificial Intelligence & Machine Learning, has equipped me with cutting-edge knowledge and practical skills. During my time at Kantipur Engineering College, I not only excelled academically, securing a merit-based scholarship for four semesters but also honed my technical skills through hands-on projects and competitions, such as winning the LITEHACK 2020 and the LITE IDEATHON 2020.

In my professional experience as a Machine Learning Engineer at E.K. Solutions Pvt. Ltd., I have led several innovative projects that demonstrate my ability to tackle complex problems and deliver high-quality solutions. For instance, I developed a multilingual resume parser and semantic job matcher using LLaMA2, achieving impressive precision and recall metrics. I also optimized a semantic segmentation model, reducing its size by 70% and increasing its speed by 32% with minimal accuracy loss. These projects reflect my proficiency in machine learning, natural language processing, and optimization techniques.

Moreover, my role as a STEM instructor for the City of Brampton allowed me to translate complex technical concepts into engaging lessons for young students. This experience underscores my strong communication skills and my ability to inspire and mentor others.

I am particularly drawn to Google because of your commitment to innovation and excellence in technology. The opportunity to work on groundbreaking projects that have a global impact aligns perfectly with my career aspirations. I am excited about the prospect of bringing my technical expertise, problem-solving skills, and passion for innovation to Google's team.

Thank you for considering my application. I look forward to the possibility of discussing how I can contribute to the success of Google.

Sincerely,
Rajan Ghimire

How ChatGPT helped me?

ChatGPT was an incredibly helpful tool as I was crafting my resume and cover letter. With its user-friendly interface, I was able to input information about my skills, experiences, and education with ease. The AI model then provided me with tailored suggestions for both documents, ensuring they were polished and professional. It even offered specific examples of action verbs and phrases that could be used to highlight my strengths and accomplishments. Additionally, ChatGPT proofread my work for any grammar or spelling errors, which saved me time and effort in the revision process.