ARYAN PAREKH

519-694-7072 | aparek8@uwo.ca | London, ON, Canada
Portfolio: aryanparekh.pythonanywhere.com | LinkedIn: linkedin.com/in/aryanparekh12

EDUCATION

The University of Western Ontario Sep 2023 – Apr 2025
M. Sc, Computer Science (GPA: 4.00 / 4.00) *London, ON, Canada*

Relevant Coursework: Data Structures and Algorithms, Object-Oriented Programming, Software Engineering, Operating Systems, Artificial Intelligence, User Experience/User Interfaces, Machine Organization and Programming
Honors and Awards: Western Graduate Research Scholarship, Graduate Fellowship

University of Mumbai Aug 2019 – Jun 2023
B. Tech, Computer Engineering (GPA: 3.83 / 4.00) *Mumbai, MH, India*

SKILLS

Languages: Python, Java, JavaScript, SQL, R, HTML, CSS, C, Bash
Technologies: TensorFlow, PyTorch, Hugging Face Transformers, Streamlit, Azure Machine Learning Studio, Django, Django REST Framework, React.js, Flask, Bootstrap, TensorFlow, PyTorch, NumPy, Pandas
Tools: GPU Computing, GitHub, Linux, Shell Scripting, GPU Computing, Automation Anywhere, MySQL, PostgreSQL, SQLite
Development Skills: Prompt Engineering, LLM Fine-Tuning (GPT, T5, BERT), Model Evaluation Metrics (F1-score, BLEU score, accuracy), Transfer Learning, Tokenization and Embeddings, Text Generation and Summarization, Named Entity Recognition (NER), Hands-Free Fine-Tuning with AutoML, Generative Adversarial Networks (GANs), Sequence Modeling with LSTMs, Production-Scale Generative AI Deployment, API Development, Data Structures and Algorithms, Operating Systems, Backend Development, Full-Stack Development, Continuous Integration, Version Control (Git), Scalability, Process Automation, Code Optimization

WORK EXPERIENCE

Generative AI Externship | *Cognizant* Jan 2025 – Mar 2025

- Delivered 33+ real-world Generative AI projects using advanced techniques like prompt engineering, LLM fine-tuning, and architectures such as GANs, LSTMs, BERT, T5, and GPT-2, building solutions like artistic image generation, text synthesis, NER, FAQ assistants, and chatbots.
- Optimized AI workflows with Azure Machine Learning Studio, reducing deployment time by 40% via automated MLOps pipelines, hands-free fine-tuning, and hyperparameter optimization for tasks like sentiment analysis using BERT.
- Earned the Cognizant GenAI Digital Badge by mastering production-scale Generative AI solutions, ensuring 100% on-time delivery, and leveraging transfer learning, tokenization, and evaluation metrics like F1-score and BLEU score.

Software Engineer Intern | *Kwoda* Sep 2023 – Jul 2024

- Developed a multi-company HR web platform using Python, Django, Django REST Framework, React.js, and JavaScript, enabling sales employee performance tracking and onboarding for 100+ employees across 3 companies.
- Implemented a digital resume feature backed by a SQLite database, generating 100% verified work records approved by HRs/managers, improving credibility for 15+ employees transitioning between companies.
- Engineered a QR-based authentication system integrated into digital resumes using Python and Django, ensuring tamper-proof verification via a secure backend, achieving 100% adoption and boosting trust in employee records.

Co-Founder and Full-Stack Developer | *Trinite* Aug 2021 – Sep 2023

- Co-founded Trinite, a tech startup helping 5+ small-scale businesses enhance their online presence through tailored websites and digital solutions (like Search Engine Optimization), improving efficiency and expanding outreach.
- Constructed a robust e-commerce platform for our client Knickgasm using Django, React.js, Python, JavaScript, and MySQL, integrating cart, wish list, and Razorpay Payment Gateway to enable 600+ flawless customer transactions.
- Validated the platform through unit and functional testing, fixing edge cases and optimizing performance to achieve 100% reliability, enabling the client to secure 15+ celebrity collaborations and a 'Shark Tank India' pitch.

Backend Developer Mentor | *DJ Unicode* Aug 2020 – Jul 2023

- Contributed to 6+ outhouse projects while mastering full-stack development as a mentee, gaining expertise in backend technologies like Django REST Framework, alongside frontend stacks like React.js, HTML, CSS, and JavaScript.
- Led 3 outhouse projects as a Backend Developer Mentor, including a charity website for JAAV (school for blind children), boosting donations by 30% in 2 months through awareness and streamlined donation processes.
- Deployed a Student Portal to collect academic and research data for first-year students, achieving 100% participation and 70% active engagement, inspiring adoption by 4 additional departments for broader implementation.

Graduate Research Assistant | *The University of Western Ontario* Sep 2023 – Apr 2025

- Improved real-time object detection accuracy for Advanced Driving Assistance Systems (ADAS) by researching Transformer-based models and CNNs (RT-DETR and YOLOv8), solving critical machine learning challenges.
- Trained and tested 35 custom models using Python, PyTorch, and Google Colab, leveraging Compute Canada GPUs with Linux and Shell Scripting for large-scale experimentation. Concluded that YOLOv8 outperforms RT-DETR in ADAS environments based on inference time and detection accuracy.
- Authored a 100+ page thesis and a comprehensive paper categorizing ADAS challenges into non-imaging sensor data, imaging sensor data, and communication sources, presenting innovative ML solutions for each category.

PROJECTS

GANs for Artistic Abstract Image Generation

TensorFlow, Keras, Python, NumPy, OpenCV, GANs *Generative AI*

- Developed and trained a GAN model using TensorFlow/Keras on the WikiArt Abstract Collection dataset, preprocessing images to 128x128 pixels and normalizing pixel values, achieving high-quality abstract art generation over 500 epochs.
- Designed generator and discriminator architectures using deep learning techniques, leveraging GPU acceleration for efficient training, and evaluated outputs for visual diversity and artistic creativity.

Text Generation with LSTM using Shakespeare's Corpus

TensorFlow, Python, NumPy, LSTM *Generative AI*

- Built and trained an LSTM model using TensorFlow on Shakespeare's text dataset, preprocessing the corpus with character-level tokenization and sequence generation, and trained the model for 50 epochs to capture long-term dependencies in the text.
- Implemented a text generation pipeline where a seed text is used to produce coherent outputs, incorporating temperature parameter tuning to control creativity, resulting in diverse and contextually relevant text generation.

Fine-Tuning BERT for Named Entity Recognition (NER)

Hugging Face Transformers, Tensorflow, Python *Generative AI*

- Fine-tuned a BERT-base-uncased model using Hugging Face's Transformers library on the CoNLL-2003 dataset for Named Entity Recognition (NER), achieving an accuracy of 93.892% by extracting key entities (e.g., names, dates) with minimal training epochs due to fine-tuning.
- Optimized the model using Hugging Face's Trainer API, adjusting hyperparameters like learning rate, and evaluated performance using F1-score and precision-recall metrics, ensuring robust entity extraction for real-world applications.

Building an FAQ Assistant Using T5 and Streamlit

T5 Model, Hugging Face Transformers, Python, Streamlit *Generative AI*

- Developed an FAQ Assistant using the T5 (Text-To-Text Transfer Transformer) model, fine-tuned on the FAQ-QA dataset to generate accurate and contextually relevant answers to user queries, leveraging tokenization and embeddings for efficient text processing.
- Deployed the application as an interactive web interface using Streamlit, enabling temporary hosting and real-time user interaction, and optimized prompt engineering to enhance response quality and relevance for diverse FAQ scenarios.

Personalized Chatbot Development Using GPT-2

GPT-2, Hugging Face Transformers, Python, Tokenization *Generative AI*

- Designed and trained a personalized chatbot using the GPT-2 model, fine-tuning it on a custom dataset curated for specific use cases. Despite the dataset's small size, the model achieved high-quality results by leveraging transfer learning, tokenization, and attention mechanisms, enabling it to generate contextually accurate responses.
- Implemented advanced techniques such as learning rate scheduling, gradient clipping, and batch optimization to enhance training efficiency and prevent overfitting. The chatbot was evaluated using BLEU score and human feedback, demonstrating its ability to handle diverse conversational scenarios with high relevance and precision.

Sentiment Classification Using BERT on Azure Machine Learning Studio

Azure Machine Learning Studio, BERT (bert-base-uncased) *Generative AI*

- Fine-tuned the bert-base-uncased model on a dataset of 16,000 English tweets classified into 6 emotions using Azure Machine Learning Studio, achieving hands-free training with automated hyperparameter tuning, tokenization, and evaluation, resulting in high-precision sentiment classification validated by robust metrics like accuracy and F1-score.