

**EDUCATION:**

Master of Applied Computer Science - Concordia University, Canada

B. Tech in Information Technology - Sreenidhi Institute of Science and Technology, India

Sep 2022 - April 2024

Aug 2018 - Jul 2022

**SKILLS:**

- **Programming languages:** C, C#, Prolog, Python, R, Java, SQL, NoSQL, HTML, CSS and JavaScript
- **Frameworks & Libraries:** Git, Linux, PyTorch, Hugging Face, Transformers, LLM Fine Tuning, Keras, TensorFlow, NumPy, Pandas, Matplotlib, Tableau, Power BI, R-Studio, plotly, spaCy, Seaborn, nltk, Scikit-learn, Docker, Couchbase, Kubernetes, ElasticSearch, Flask, gRPC, Azure Open AI, AWS Sagemaker, SpeechBrain, mlflow

**WORK EXPERIENCE:**

Microsoft + Nuance, Speech and Data Science Intern

Operated with the Professional Services Enterprise team,

May - Jul, 2023

- Engineered a Python-based Regex Data Redaction Tool to safeguard sensitive PII and PCI data. Integrated gRPC Calls for seamless functionality and rigorously tested each feature through comprehensive test cases in Python
- Actively contributed to the development of an NLU Data Augmentation Tool utilizing GPT-3/4 to generate training data. Conducted benchmarking, optimized performance through hyperparameter tuning. Utilized custom evaluation metrics for assessment and analyzed reports generated using Nuance Mix tool by models trained on different metrics

Deloitte, Data Science Intern

Operated with the Deloitte Application Studio in Audit & Assurance team,

Jan - Aug, 2022

- Acquired proficiency in AI development within the Deloitte Application Studio, specializing in Microsoft Azure services, including LUIS, QnA Maker, TTS, and Bot services
- Developed a Conversational AI bot using LUIS and QnA Maker services, enhancing user interactions for Audit-related tasks and user stories. Additionally, implemented TTS audio capabilities for the bot using Azure AI speech services

Technocolabs Softwares Inc, Data Science Intern

Operated with the Product Development team,

May - Aug, 2021

- Collaborated on a Time Series Forecasting project, specializing in data augmentation techniques to enhance the dataset for improved model performance
- Developed predictive models to forecast next-second price movements in the stock market, including Logistic Regression, SVM variants, LSTM and led data visualization and storytelling efforts to effectively communicate project progress and insights to stakeholders

SmartBridge Pvt Ltd, ML Engineer Intern

Operated with the Data and AI team,

May - Aug, 2020

- Led the development of a CNN-based deep learning model, handling data preprocessing and successful deployment on the IBM cloud platform
- Utilized advanced deep learning and optimization techniques, consistently surpassing project goals and earning recognition as the top intern team in RSIP-2020

**PUBLICATIONS:**

- Co-authored book chapter 14 - [Post-COVID Impact on Skin Allergies](#) (Book Title: Data Science Applications of Post-COVID-19 Psychological Disorders)
- [An Intelligent TLDR Software for Summarization](#) – IJRASET (DOI: 10.22214/ijraset.2022.44508)
- [Predictive Analytics of BMI using CNN](#) – JMPAS (DOI: 10.22270/jmpas.V10I6.1656)

**PROJECTS:**

**Transformer based TTS System**

- Implemented and optimized a Transformer based TTS model using the LJSpeech dataset and SpeechBrain framework. Advanced speech synthesis capabilities by implementing scaled positional encodings, applying teacher forcing, and utilizing weighted loss functions for Mel spectrogram predictions and stop token accuracy. These enhancements led to a marked improvement in natural speech synthesis, reducing Mel Error to 8.27e-03 and Stop Error by over 10%.
- Enhanced training efficiency and speech quality by utilizing dynamic batching for varied input lengths and applying the Noam Scheduler, Optimizer Initialization technique for dynamic learning rate adjustments and fine tuning. Achieved training speeds up to 3.5 times faster than Tacotron2, while improving long-range dependency handling for more natural speech synthesis.

**Dialogue Summarization: Fine Tuning LLM using Prompt Engineering and PEFT**

- Explored the FLAN-T5 model from Hugging Face, to summarize dialogue. Employed prompt engineering to refine the quality of the summaries and experimented with zero-shot/few-shot inference and prompt formats to boost model’s in-context learning and performance
- Fine-tuned the model with PEFT method – Low Rank Adaptation, resulting in a substantial reduction in model size by over 95% while maintaining competitive performance metrics, as evidenced by a 17.47% and 8.73% improvement in ROUGE-1 and ROUGE-2 scores over human baseline summaries

**Automated Retail Product Classification using CNN**

- Implemented CNN models using ResNet-18, GoogleNet, AlexNet on three different datasets for classifying grocery products addressing challenges like imbalanced data & vanishing gradients and conducted hyperparameter tuning using grid search, ensuring optimal model configurations for superior performance
- Fine-tuned models using transfer learning on weights of best performing model (ResNet-18) to achieve high performance and performed bias analysis to understand the nuances in different models

**Multi-task Modeling on handwritten digits using Keras**

- Performed simultaneous tasks on grayscale digits: predicting digit value and color. Designed a data generator function that generates red, green colour images using the greyscale MNIST images dataset from Keras
- Developed a Resnet-style architecture with skip connections for a multi-tasking neural network model. Achieved a remarkable 98% accuracy for digit and color recognition using interconnected neural networks

**Modeling Wine Quality using Ensemble Modeling Approach**

- Employed ensemble modeling techniques on a wine dataset to predict wine quality scores based on chemical properties and expert wine taster evaluations. Utilized bagging technique to build predictive models, including Random Forest, Gradient Boost, Ada Boost, XG Boost
- Achieved superior prediction accuracy of 89%, with the XG Boost algorithm outperforming other models, contributing to enhanced wine quality assessment and analysis

**Skin Disease Identification using Image Analysis**

- Developed a CNN model with OpenCV integration for streamlined image analysis. Enhanced model generalization by innovating a custom data preprocessing pipeline in PyTorch
- Employed Max-Pooling, Flatten, and Conv2D neural network layers for robust real-time skin disease detection. Deployed the model via Flask, creating an efficient and user-friendly application for skin disease identification

**CERTIFICATIONS:**

- Oracle Cloud Infrastructure Generative AI Professional certification – Oracle Cloud
- Machine Learning certification - Stanford University
- The Data Scientist toolbox - John Hopkins University
- AWS Academy- Cloud Foundations course - Amazon
- Programming Data structures and algorithms using Python - IIT Madras
- Facial Expression Recognition using Keras - Coursera
- Generative AI with LLMs - Coursera

**ACHIEVEMENTS:**

- Full-Time Post Matric Scholarship from the State Government of Telangana for the entire bachelor’s degree
- Silver Award at Ennovate - The International Innovation Show, Poland, 2021
- ELITE grade in 'Data Structures and Algorithms using Python' course from IIT Madras
- Gold Badge in Python Module Assessment from HackerRank
- AWS Academy Graduate Badge for completing AWS Academy Cloud Foundations course
- Bronze in Global Assessment of Information Technology, 2021

**EXTRA-CURRICULAR ACTIVITIES:**

- Volunteer Team Leader, ConUHacks VIII, Concordia University**
- Jan 2024**
- Led a team of volunteers, effectively coordinating and managing activities during ConUHacks, Quebec’s Largest hackathon hosted by Concordia, showcasing strong leadership, task assignment, and communication skills
  - Contributed significantly to the overall success of the event by fostering a collaborative team environment, addressing issues promptly, and ensuring a positive experience for participants, sponsors, and executives

- The Techvision club**
- Aug 2020 – Sep 2022**
- Board Member & Executive Board Member: Served on the Technical team, leading the Focus on Research (FOR) initiative, mentoring students in research projects, and facilitating research publications
  - Programming Tutor: Conducted hands-on training sessions in C, Python, and R for over 120 students
  - Event Organizer: Spearheaded the development of the club's inaugural website and organized technical events, including workshops, hackathons, and quizzes. Hosted webinars on AI, Data Science, and Web Development featuring industry experts

- AIESEC in Hyderabad**
- Aug 2020 – Jan 2021**
- Actively contributed to the Outgoing Global Talent Department, specializing in content creation, market research, and partnership development to facilitate international internship exchange programs
  - Collaborated with a global network of young leaders to create meaningful cross-cultural experiences and promote international understanding through AIESEC initiatives