

Himalaya Sharma

Portfolio: <https://himalayasharma.github.io/>

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EDUCATION

- University of Waterloo** Waterloo, Canada
Master of Engineering - Electrical & Computer Engineering; Percentage - 87.6% Jan 2022 - Present
Relevant Coursework: Deep Learning, Machine Learning, Statistics for Data Analysis
- Birla Institute of Technology & Science** Goa, India
Bachelor of Engineering - Electronics & Communication Engineering; GPA - 8.30/10 Aug 2016 - May 2021
Master of Science - Biological Sciences; CGPA - 8.30/10
Relevant Coursework: Linear Algebra, Calculus, Probability & Statistics, Digital Signal Processing, Introduction to Bioinformatics

EXPERIENCE

- Vienna University of Technology & New York University, Abu Dhabi**
Research Internship (CARE-Tech. group) | Advisor - Prof. Dr.-Ing Muhammad Shafique August, 2020 - May, 2021
Machine Learning for wearable healthcare
 - Investigated and optimized the Temporal Fusion Transformer, a state of the art multi-horizon time series forecasting deep learning model, for bio-signals (primarily ECG).
 - Integrated data generators in the workflow to handle large datasets and analyzed forecasts made by 100+ variants of above mentioned model, for pre-emptive heart diagnosis.
 - Evaluated performance of model variants using visual plots and added 3 forecast KPIs (key performance indicators) namely - MAPE, MSE and MAE.
 - Experimented with modified loss functions to enhance forecast capability of TFT.

PROJECTS

- Reverse Image Search Engine:** Gives top 5 matches for input query image [Github]
 - Constructed **content-based image retrieval** system using **VGG-16 deep learning model** and **CIFAR-10** dataset.
 - Trained model (initialized with **ImageNet weights**) for **multi-class classification** and obtained **accuracy of 89%** on **stratified validation set** and **90%** on **test set**.
 - Utilized network front-end for **feature extraction** and generated **60k** image encodings to compute similarity scores against query image for obtaining **top 5 matches**.*Tech Stack:* Python, TensorFlow
- Jarvis Lite:** AI-powered virtual assistant [Github]
 - Recorded **4-second monophonic audio clips (16 kHz)** containing questions in **wav format** and employed **AssemblyAI's API** to generate corresponding speech to text transcripts.
 - Utilized **OpenAI's API** with a **GPT-3 backend (Davinci variant)** to produce answers capped at **100 tokens**.*Tech Stack:* Python, AssemblyAI API, OpenAI API
- Elementary Blockchain:** Deployed **web application** to exhibit features of blockchain. [Web App] [Github]
 - Employed an **object-oriented approach** to implement a **blockchain model**.
 - Built functionalities to - **view chain**, **mine blocks** (using a simple **proof of work algorithm**), evaluate **validity** and facilitate **tracability** of any **illegal modification**.*Tech Stack:* Python, Flask, HTML, CSS, Heroku
- Sensor Data Compression:** Exploration of compression using **dimensionality reduction** [Video] [Github]
 - Employed **6 feature extraction** and **3 feature selection** techniques on **wearable physiological sensor data**.
 - Evaluated classification performance on reduced data using **KNN**, **Decision trees**, **SVC & Random Forest**.
 - Achieved **maximum compression** of upto **99.25%** with an **accuracy percentage loss** of only **6.7%**.*Tech Stack:* Python, Scikit-learn

CERTIFICATIONS

- Certified TensorFlow Developer**, by **TensorFlow** | Issued: **27 Aug'22** & Expiry: **27 Aug'25**
- Certified Cloud Practitioner**, by **Amazon Web Services (AWS)** | Issued: **17 Aug'22** & Expiry: **17 Aug'25**
- TensorFlow Developer Specialization**, by **Coursera** | Issued: Aug'22
- Building Transformer-Based Natural Language Processing Applications**, by **NVIDIA DLI** | Issued: Jul'21
- Fundamentals of Deep Learning**, by **NVIDIA DLI** | Issued: Jul'21
- Deep Learning Specialization**, by **Coursera** | Issued: Aug'20
- Python**, by **HackerRank** | Issued: Jun'20

SKILLS SUMMARY

- Languages:** Python, R, SQL
- Tools & Technologies:** MS Excel, MS PowerPoint, Scikit-Learn, TensorFlow, Keras, NumPy, SciPy, Pandas, Matplotlib, Git, AWS
- Data Science & Machine Learning:** Data Collation & Wrangling, Statistical Analysis, Model Development & Enhancement, Visualization & Interpretation, Clustering, Classification, Regression