# Himanshu Bhenwal

Bachelor of Technology
Computer Science Engineering and DS and AI
Github Profile

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Kaggle Profile
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## Summary


- I am a dedicated and enthusiastic individual pursuing a Bachelor's degree in Computer Science and Engineering at Bhagwan Parshuram Institute of Technology, New Delhi. With a strong passion for technology and innovation, I am deeply interested in machine learning, natural language processing, software development and NLP research. I have gained practical experience through internships and projects, where I have honed my skills in Python programming, machine learning frameworks like TensorFlow and PyTorch, and data analysis. I am proactive, adaptable, and always eager to learn new things, with a keen interest in exploring cutting-edge technologies to solve real-world problems.


## Education

**•B.Tech in Computer Science and Engineering** *2021-25*
*Bhagwan Parshuram Institute Of Technology, New Delhi* Offline Regular Degree

**•B.Sc. (Hons.) in Data Science and Artificial Intelligence** *2023-27*
*Indian Institute Of Technology, Guwahati* Online Degree Program

## Personal Projects

**• HTML-Llama: Automated HTML Code Generation**

*Fine-tuned Llama 2 to generate HTML code from input lines.*

- Utilized PEFT and LoRA for efficient fine-tuning on minimal GPU resources.
- Leveraged Python, PyTorch, and HuggingFace for precise model tuning and hosting.

**• safūgo: RAG Flight Assistant**

*Developed a RAG-based assistant for flight inquiries using HuggingFace and LLamaIndex.*

- Engineered the RAG application with Meta Llama 2 7B and LlamaIndex.
- Utilized Python, PyTorch, Keras, and HuggingFace Transformers for seamless integration.

**• srch.io : RAG Web Search Engine**

*Developed a RAG-based search engine using SearchApi and LeptonAI.*

- Used LeptonAI workspace for using Mixtral 8x7B.
- Engineered a Python backend to facilitate communication between searches, results, and RAG functionality.
- Implemented React for the frontend.

**• Alzheimer's Classification with Modified GoogLeNet**

*Developed a classifier for Alzheimer's detection using modified GoogLeNet.*

- Achieved an outstanding 99.2% accuracy on unseen data.
- Employed Python, TensorFlow, Keras, and Matplotlib for robust development and evaluation.

**•Vision Transformer from Scratch**

*Implemented a ViT from scratch in Python*

- Implemented the architecture of ViT from the "An Image is worth 16x16 words paper".
- Employed Python, PyTorch, NumPy for implementing.

**•Whisper for Automatic Speech Recognition on Indic Datasets**

*Ran evaluations for assessing performance of Whisper ASR model on Indic Datasets*

- Wrote scripts for evaluating the performance of Whisper-Large on the Gramvaani and Kathbath Indic datasets by AI4Bharat.
- Achieved WERs of 0.50 and 0.28 on both the datasets respectively.
- Employed Python, PyTorch, NumPy, OpenAI Whisper for implementing.

**• Sign Language MNIST Classification using Convolutional Neural Networks**

*Used TensorFlow to create a classification model based on the Sign Language MNIST dataset on Kaggle*

- Constructed a classification model by leveraging a Convolutional Neural Network (CNN) tailored for the Sign Language MNIST dataset acquired from Kaggle.
- Employed Python, TensorFlow, Keras, Matplotlib, NumPy, and Pandas for model creation, implementation, and analysis.

• **YOLO-V1 Implementation in TensorFlow**

*Used TensorFlow to implement YOLO*

- Constructed the model by carefully referring the paper.
- Employed Python, TensorFlow, Keras, Matplotlib, NumPy, and Pandas for model creation, implementation, and analysis.

• **Analysis and Prediction of Rain and Weather Trends in Australia**

*Analysed and predicted rain and the weather trends in Australia.*

- Conducted comprehensive analysis and predictions of rain and weather trends in Australia using the Rains in Australia dataset from Kaggle achieving an accuracy of 85.6% using XgBoost.
- Utilized Python, Pandas, NumPy, and scikit-learn for data manipulation, analysis, and modeling.

## Research Work

• ***Modified GoogLeNet Using Batch Normalization for Image Classification Tasks** *Under Review*

• **Symphony: Application of ArucoMarkers as a Vision Based Control System** *Under Review*

**(Title is subject to change)*

## Experience

• **Machine Learning Engineer Intern** *Sep 2023*

*Whizoid Studio*

- Annotated a large image dataset using Label Studio to support model training.
- Contributed to designing a CNN architecture for optimized image classification.

• **Undergraduate Student Researcher** *March 2023 - Present*

*Bhagwan Parshuram Institute Of Technology*

- Investigating the application of ArucoMarkers for streamlining routine processes.
- Exploring innovative approaches to enhance human-robot interaction using fine-tuned LLMs.

## Technical Skills and Interests

**Languages**: C, C++, Python, Java, HTML, JavaScript
**Libraries** : NumPy, Pandas, C++ STL, React
**Dev Tools/Environments**: VScode, Vim, JupyterLab, Git
**Frameworks**: TensorFlow, PyTorch, Keras, scikit-Learn, CSS
**Databases**: SQL

## Positions of Responsibility

• **Head of Operations at IEEE BPIT Student Branch** *2021 - Present*

- Initiated impactful initiatives to promote Machine Learning awareness among peers.
- Mentored junior students, fostering a culture of continuous learning and growth.

• **Co-creator and Lead Instructor of IEEE BPIT's SIG on ML** *2022 - Present*

- Teaching ML in semester long classes to students from different branches who are enthusiastic about learning ML for advancing their growth in the current landscape of tech.
- Leading weekly paper reading sessions and discussions with fellow team members.
- Helping fellow junior students in their research projects in Computer Vision, NLP.

## Licenses and Certifications

- **Natural Language Processing Specialization** *DeepLearning.ai*
- **TensorFlow Developer Professional Certificate** *DeepLearning.ai*
- **Machine Learning Specialization** *DeepLearning.ai*
- **Neural Networks and Deep Learning** *DeepLearning.ai*
- **Python Essentials for MLOps** *Duke University*
- **Introduction to Machine Learning in Production** *DeepLearning.ai*
- **Machine Learning Data Lifecycle in Production** *DeepLearning.ai*
- **Introduction to Machine Learning on AWS** *DeepLearning.ai*
- **Machine Learning Explainability** *DeepLearning.ai*
- **Divide and Conquer, Sorting and Searching, and Randomized Algorithms** *Stanford Online*
- **Python for Data Science and Machine Learning** *Udemy*

## Achievements

- **Kaggle Expert in the Notebooks and Discussions Categories**
  - Rank 727 in Discussions out of 30,412.
  - Rank 2067 in Notebooks out of 58,583.

- **Served as member of jury at the Datadive : The Ultimate Datathon**
  - Served as a judge at the annual flagship datahon organized by IEEE WIE BPIT.

- **Selected among 5 exceptional student volunteers in the IEEE Student Branches of India to attend the IEEE Region 10 SYWLC Congress 2024 at Tokyo, Japan to be held in August 2024.**