Akshat Agarwal

Machine Learning Engineer

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QUALIFICATION SUMMARY

Experienced Applied Research Scientist specializing in software development and machine learning, with expertise in AI research and transitioning research to production. Skilled in leading technical teams in startup environments and developing AI-driven solutions for Intelligent Document Processing (IDP), Automatic Speech Recognition (ASR), and Natural Language Understanding (NLU) using advanced Deep Learning techniques and programming skills.

KEY SKILLS

- Python
- Github
- Deep Learning
- Kubernetes
- Pytorch
- Computer Vision

PROFESSIONAL EXPERIENCE

Senior Machine Learning Engineer — Feb'23- Current
NeuralSpace — Bangalore, India

- Spearheaded the development of an advanced IDP platform capable of processing both structured and unstructured documents in English and Arabic.
- Integrated state-of-the-art models and frameworks, such as **Pix2Struct**, **LLaVA LLM**, and **YOLO**, to significantly enhance **Visual Question Answering (VQA)**, **OCR**, and **Object Detection** capabilities.
- Designed and trained novel **VQA** and **OCR** pipelines by creating a proprietary in-house dataset, achieving **state-of-the-art** performance in document understanding tasks for Arabic.
- Successfully deployed the IDP platform using **Kubernetes**, ensuring scalability and reliability across diverse production environments, optimized for performance.

Applied Research Scientist — June'21- Jan'23
NeuralSpace — Bangalore, India

- Led the research and development of **Speech-To-Text** (STT), **Natural Language Understanding** (NLU) models, significantly improving linguistic accessibility and user interaction across multiple languages.
- Leveraged frameworks like **Whisper**, **Kaldi**, and **wav2vec** for speech processing, and **transformer architectures** for NLU, achieving cutting-edge performance in multilingual environments.

Applied Research Scientist Intern Nov'20 - May'21
NeuralSpace Remote

- Designed and implemented **NLU** frameworks for low-resource languages.
- Developed **Transliteration** models using Pytorch for 12 Indian languages.
- Trained **Named Entity Recognition** (NER) models for 55 low-resource languages for NeuralSpace's TextAI platform.

EDUCATION

B.Tech in Electrical 2017-2021
Delhi Technological University Delhi, India
CGPA: 8.19

AISSCE/CBSE (Class XII) 2017
Sardar Patel Vidyalaya Delhi, India
Percentage : 94.2%

PUBLICATIONS

SustaiNLP @ EMNLP'20
End to End Binarized Neural Networks for Text Classification

- Constructed a fully **Binarized Neural Network pipeline** for the task of i**ntent classification** using **CNN** architecture.
- Weights and activations of network layers were constricted to **{+1,-1}** which are highly efficient in terms of hardware and memory.
- Achieved **state-of-the-art** results on various datasets while **reducing memory footprint and training time** due to effectiveness of binary operations.

Hasoc2021
One to Rule Them All: Towards Joint Indic Language Hate Speech Detection

- Presented a **multilingual architecture** using state-of-the-art transformer language models to jointly learn **hate and offensive speech detection** across three languages, i.e English, Hindi, and Marathi.
- On the provided testing corpora, achieved **high accuracy** showing the efficacy of exploiting a **multilingual training scheme**.

CERTIFICATIONS

Deep Learning Specialization
deeplearning.ai

Machine Learning with Python
IBM

Python for Data Science and Machine Learning Bootcamp
Udemy