KANISHK ARYA

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EDUCATION

Bachelor of Engineering, Computer Engineering Dr Vishwanath Karad MIT-WPU (GPA: 9.51/10) **Nov 2021 - Present**

CBSE AISSCE PSBB Millennium School, Gerugambakkam, Chennai (Per : 94.4%) **2020-21**

CBSE AISSE Centre Point School, Dabha, Nagpur (Per: 96.8%) **2018-19**

SKILLS

Languages: Python, C, C++, Shell, CUDA, MySQL, HTML, CSS, JS

Frameworks and Libraries : TensorFlow, Keras, Scikit-Learn, Pandas, NumPy, Matplotlib, PyTorch, Flask

Tools and Technologies: Anaconda, Git, Jupyter Notebook, Google Colab, VS Code, Kate, Unity, AWS, Amazon Sagemaker, Docker, YOLO, Firebase, Flutter

Databases : MySQL, MongoDB, Firestore Database | **OS Experience :** Linux, macOS, Windows

CERTIFICATIONS

Shell Scripting

- Hands-on Introduction to Linux Commands and Shell Scripting - **IBM, Coursera**

GPU Coding

- Fundamentals of Accelerated Computing with CUDA Python - **NVIDIA Deep Learning Institute**
- Fundamentals of Accelerated Computing with CUDA C/C++ - **NVIDIA Deep Learning Institute**
- Accelerating CUDA C++ Applications with Multiple GPUs - **NVIDIA Deep Learning Institute**

Machine Learning

- Introduction to Machine Learning - **NPTEL IIT Kharagpur**
- Fundamentals of Deep Learning - **NVIDIA Deep Learning Institute**
- Building Transformer-Based Natural Language Processing Applications - **NVIDIA Deep Learning Institute**
- Getting Started with AI on Jetson Nano - **NVIDIA Deep Learning Institute**
- Supervised Machine Learning: Regression and Classification - **DeepLearning.AI, Stanford Online**
- Advanced Learning Algorithms - **DeepLearning.AI, Stanford Online**
- Generative AI with Large Language Models - **DeepLearning.AI, AWS**

Python Programming

- Programming, Data Structures And Algorithms Using Python - **NPTEL IIT Madras**
- Python for Data Science - **NPTEL IIT Madras**

WORK EXPERIENCE

Machine Learning Intern at Accrete.AI *December 2022-October 2023*

- Worked on STX(Smart Table Extraction) projects for Accrete, primarily a computer vision task.
- Developed a machine learning algorithm to detect tables and cells in an image with high confidence values.
- Created fully functioning models using the YOLOv3, YOLOv5, YOLOv7 and YOLOv8 architectures.
- Performed transfer learning on pretrained YOLO models and trained on a large database of 500,000 annotated images from the PublayNet Dataset.
- Worked on creation of a unified training script for YOLOv5 and YOLOv7 that gives the user a simplified method for training custom models.
- Worked on Document Question Answer methodologies using LayoutLMV2 fine tuned for the DOCvQA dataset.
- The same recommendation letter can be found here.

Intern at First Language Technologies *June 2023-August 2023*

- Worked on Grammar Correction APIs to modify and edit spoken words.
- Assisted on creating a pipeline that can provide help to people with speech impediments.
- Helped maintain the official Github repository of the project that can be found here.

Tech Team Intern at AI4Bharat *November 2023-March 2024*

- Worked on development of an Indic-OCR model that would be able to perform OCR on native Indian Languages.
- Collected a large corpus of documents (around 3,00,000) comprising categories such as newspapers, books, publications, etc for regional languages.
- Created scripts for synthetic document generation. Used predefined document layout rules for elements such as headers, page numbers, images, etc.
- Added multilinguality to the synthetic document generation, to encompass high quality documents of 12 Indian Regional Languages.
- Utilized models such as DiT, LayoutParsers to test out inference and determine their efficiency.

AI Intern at ProductizeTech *March 2024-May 2024*

- Developed and deployed AI-powered computer vision applications leveraging AWS services (Lambda, Rekognition, S3) and Python for image processing, object detection, and 3D human body reconstruction.
- Engineered and implemented pose estimation and human body segmentation models utilizing cutting-edge transformer architectures for enhanced accuracy.
- Built and optimized face detection and re-identification systems, demonstrating expertise in facial recognition technology.
- Containerized AI applications using Docker and deployed on GPU-based Linux servers, showcasing proficiency in cloud-based deployment strategies.
- Gained experience in API development using FastAPI, Celery, and Redis Queues, expanding skillset in backend development and data pipelines.

COVID19 Detection Research *June 2023-Present*

- Worked on creating a benchmarking script for classifying patient lung samples as COVID, non-COVID, and Uninfected.
- Assisted in the deployment of the code of around 230 models consisting of CNNs and ViTs.
- Project was undertaken at Iowa State University, Ames under the direction of Dr. Arun Somani.
- The official GitHub repository and paper is currently underway.

ACADEMIC PROJECTS

ViziAssist *September 2022-Present*

- Created the framework for road obstacle detection system using data collected from the IDD dataset.
- The model, currently in an alpha stage, can efficiently classify road obstacles such as cars, and pedestrians.
- Developed from scratch using the NVIDIA Jetson Nano Developer Kit.
- A paper for the same has been submitted to relevant conferences and is set for publishing this year.
- The code for the same can be accessed here.

SkillSet Sherpa *September 2023*

- Created a chatbot for career guidance of students using a pre-trained LLM.
- A complete web interface was made using Python Flask as the backend and HTML, CSS as the frontend.
- Used an ocr model to extract data from student markesheets, along with the result of the Holland Code (RIASEC) Test to tailor a prompt to be provided to the LLama-2-70B LLM to work with.
- The code for the same can be accessed here.

One View *September 2023-December 2023*

- Created a group photo sharing platform, where a group of people can click and share photos amongst themselves.
- The full stack project used MongoDB and Python as the backend, and HTML, CSS and JS as the frontend.
- The project also includes a facial clustering algorithm, to simplify the process of finding images, using the DBSCAN model.
- The code for the same can be accessed here.

Free Raj *September 2023-December 2023*

- Created a canteen food ordering platform for college students and canteen vendors.
- The full stack project used MongoDB and Python as the backend, and HTML, CSS and JS along with D3.js for interactive graphs as the frontend.
- The project also includes a food recommendation system that works with calculating cosine similarity between user ordered items.
- The code for the same can be accessed here.

VSpeak *September 2023-October 2023*

- Created a video language changing tool, that takes in a video input, along with the language of conversion and changes the input language to the selected language.
- The full stack project used Python as the backend, and HTML, CSS and JS as the frontend.
- The project also includes multiple NLP based systems that carry out speech-to-text, language translation, grammar correction and text-to-speech in a full-stack pipeline.
- There also exists a user-side validation at every step where the user can view and edit the text being processed.
- The code for the same can be accessed here.

Paper Publication *August 2022*

- Submitted paper titled "A Review of the Applications and Future Scope of Artificial Intelligence in Smart Transport"
- Presented a paper at the ICT4SD 2022, held at Panjim, Goa.
- Published in "ICT Infrastructure and Computing" that can be accessed here.

EXTRA CURRICULARS

TEDxMITWPU *May 2022-May 2023*

- Worked at TEDxMITWPU as a content writer as a part of the Content Team.
- Drafted official letters, promotional materials and social media posts, that can be viewed at the official Instagram page of TEDxMITWPU.
- Had the opportunity to work with a diverse team of multidisciplinary professionals.

GDSC MITWPU *December 2022-December 2023*

- Served as a Core Technical Team Member at Google Developer Student Clubs MITWPU.
- Assisted in organizing GDSC events that I was actively a part of such as Devfest Pune.
- Co-Hosted the GDSC MITWPU Official Podcast "Ctrl+Alt+Develop", where I interviewed various IT professionals from different industries, which can be found here.

CSI MITWPU Chapter *June 2022-June 2023*

- At the CSI MITWPU chapter, I acted as the Core Technical Team member where I was tasked with organizing and helping coordinate CSI MITWPU activities.
- This also included giving a seminar on "An Introduction to GitHub".

ACHIEVEMENTS

- Secured a grant of Rs. 1 lakh from **Dr Vishwanath Karad MIT-WPU, Pune** for further development of the project **ViziAssist**.
- Selected for the Pre-Finale Round of **KPIT Sparkle 2022** for the project **ViziAssist**; in the top 100 teams nationally.
- Secured Silver Badge in the NPTEL courses **Python for Data Science** and **Programming, Data Structures and Algorithms Using Python** facilitated by IIT Madras and Elite Certification in the NPTEL course **Introduction to Machine Learning** facilitated by IIT Kharagpur.
- Qualified in the **Smart India Hackathon 2024** College Hackathon and entered as an official entry to the hackathon.
- Won the Runner-Up position in **HACKMITWPU 2024** Entrepreneurial Hackathon for the start-up "CanMan".
- Received the **Annual Badge 2023** from Leetcode, for solving problems 300+ DAYS IN 2023 , which is awarded to the top 0.4% of Leetcoders.
- Globally ranked 59,729 in Leetcode (Top 1%) with 500+ problems solved over two years. The profile can be found here.

VOLUNTARY WORK

- Conducted seminars for Students of Grades 1-2 and Grades 6-7 for **Fun with Science** and **Introduction to Python Programming** respectively organized by **Millennium Group of Schools** as part of their **Little Millennium Summer Camp**.