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.Al, 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.Al 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 Al4Bharat 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.

Al 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 <u>here</u>.

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 <u>here</u>.

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 <u>here</u>.

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 <u>here</u>.

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 <u>here</u>.

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 <a href="https://example.com/here/be/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.