Sahil Kumar

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EDUCATION

Delhi Technological University — CGPA : 8.4 (1styear)
Bachelor of Technology - Computer Science and Engineering — **2023 -2027(expected)**
Rajkiya Pratibha vikas vidyalaya
CBSE (Class 10th) — 87% (**2020)**
CBSE(Class 12th) — 86%(**2022)**

SKILLS SUMMARY

Languages: English, Hindi,Sanskrit
Programming Languages: Python, C++,HTML,CSS
Tools: Git, Github, VSCode, Dark-Label, Anaconda, Pytorch,Docker
Hardware: Jetson Nano, Jetson Orin, Tarot Peeper, Siyi A8 mini, Intel NUC

EXPERIENCE

Software Technician at team UAS-DTU: Aug 2023 – Present

- Working as a Software Technician at team UAS-DTU, a team of undergraduate students interested in the field of aerial robotics.I have experience in computer vision, focusing on semantic segmentation and object detection. I developed AI models for DARPA using a fine-tuned CLIP-based model with LoRA techniques for trauma detection

PROJECTS

Attention-based semantic segmentation| | Python3,Pytorch

- Engineered and deployed a sophisticated custom architecture leveraging **U-Net**, specifically designed to enhance semantic segmentation capabilities.
- Incorporated infrared (IR) data-driven attention mechanisms to substantially augment the precision and discriminative power of multi-class human segmentation.
- Optimized computational resource management, achieving these enhancements with a marginal **1%** increase in the model's memory footprint, ensuring efficient scalability and deployment.

Quantized Embedding-based classifiers | | Python3,Pytorch

- Curated a bespoke multi-phase methodology for tackling classification challenges, entailing the construction of a quantized embedding space via Vector quantized Variational Autoencoders (VAE) followed by the training of a classification head.

CLIP with LORA | | Python3,Pytorch

- For zero- and few-shot approaches, we employed contrastive language-image pretraining with a low-rank adaptation module. This technique updates weights using two matrices, reducing computational power and enabling effective learning with minimal datasets

Awards and Recognition

- Achieved 2nd place among non-funded teams in the DARPA Systems competition, securing a prize of $60,000, and placed 6th in the virtual competition
- Achieved 2nd place in the Simulation Phase 4 indoor competition and 3rd overall at the ICUAS 2024 Competition as part of team UAS-DTU

Extracurricular Achievements and Interests

- Played table tennis and mental maths competition at zonal level