Archit Bhatnagar

Pre Final Year CS Undergrad

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Education

Birla Institute of Technology and Science(BITS),Pilani
Pilani,India

B.E.(Hons.) Computer Science — *Aug. 2019 - May. 2023*

- **Cumulative GPA**- 8.35/10

Work Experience

CEERI-CSIR Chennai
Chennai,India

Research Intern — *June 2021 - July 2021*

- Worked on Texture Classification using both ML(manual Feature Vector generation) and Deep Learning models).
- Implemented **Local Binary Patterns(CLBP & MRELBP) using Tensorflow** using **KNN, SVM** & Logistic Regression classifiers.
- Utilized **Transfer learning for Bilinear CNN's & AlexNet models** on texture datasets - classification **accuracy b/w 90-97%**

Deep Blink
Remote

Research Assistant — *July 2021 - Sept. 2021*

- Worked on the Machine Learning segment of a **Pose Estimation based Fitness Trainer** mobile application-**Yogi-G**.
- Analyzed **Blaze-Pose based pose estimators** for mobile devices and helped integrate the MediaPipe library to track pose.
- Implemented **Matching score evaluation based on 33 key points** detected and converted to model to TF-lite

Projects

Deep Learning for 3D Posture Classification
Python,TensorFlow,Deep Learning — *June 2021 - Present*

- Currently working on this under Prof. Kamlesh Tiwari,to improve the **accuracy of 3D-Pose Classification**.
- Used Joint **Angular Distance Maps(JADMs)** converted to RGB images as feature vectors fed into **single stream CNN's**
- Optimizing it for 3D-Yoga Poses by **augmented training** on publicly available Action datasets **HDM05 and CMU**.

Yogi-G (An AI-powered Yoga App)
Python,OpenCV,Mediapipe.Matching Score Algorithms — *May 2021 - Present*

- Worked on the **posture matching scor**e for an AI-based fitness and Yoga app able to **track upto 42 different Yoga asanas**.
- Integrated **MediaPipe Library in Android** for optimized tracking on mobile devices detecting 33 key points accross the body.
- Adding a **temporal aspect to matching score** for a trainee to continue to replicate a pose from **5 different routines**.

Digital Image Processing in Space Research and Exploration
Image Processing — *Jan 2021 - Feb 2021*

- Learning Project for the course Image Processing to analyze latest developments in **Astronomical Image processing**.
- Reviewed multiple Astronomical **Image enhancement** and **De-noising Algorithms** and sub-domains necessary currently.
- Analyzed different methods like **Fast Fourier transforms and median filtering** for random and **salt & pepper noises**.

Skills

Programming	**Advanced:** C/C++ | **Intermediate:** Java | **Basic:** MATLAB,Python
Image Processing	Image Pre-processing,Noise Removal using Fourier Transformations,Basic Image Encrytion
ML Libraries	TensorFlow,OpenCV,Mediapipe,Sklearn

Achievements

- JEE (Mains)-Obtained a rank of **5389 among 1.2 million** students(**top 0.5 %ile**) who appeared for the test in 2019
- **HScTSS** (Haryana Science Talent Search Scheme)-Awarded **Rs. 36,000 by SCERT,Haryana** for NTSE Stage-I
- CBSE Board Examinations- Obtained **95.8% marks** in Science Stream(with Computer Science),was in the **top 0.1 %ile among 1.3 million** students in 2019