Anant Pratap Singh

Final Year Undergraduate
Department of Electrical Engineering
Indian Institute of Technology Kanpur

anantps@iitk.ac.in
https://anantps926.github.io
anantps926 | anantps
+91-9759948777

Educational Qualifications

Year	Degree	Institution	CGPA/%
2019 – 2023	B.Tech, Electrical Engineering	Indian Institute of Technology Kanpur	7.5/10.0
2019	CBSE – XII	Woodbine Public School, Aligarh	90.4%
2017	AMU – X	S.T.S High School, AMU, Aligarh	9.6/10

Honors and Achievements

- **AIR 652** in JEE Advanced (amongst 2,24,000 candidates)
- **AIR 1477** in JEE Main (amongst 0.93 million candidates)
- Recipient of prestigious **NTSE Scholarship** since 2017
- Ranked amongst **Top 3** in institute in **Flipkart Grid 4.0**
- **National Top 1%**, in NSEJS and qualified for prestigious international olympiads including **INPhO** and **INAO**
- **Q**ualified **KVPY** Stage-I fellowship among 50k candidates

Work Experience

Huawei Technologies India *Bangalore, India*
Software Developer Intern May '22 - Jul '22

- Developed ML framework for an **open-source**, **distributed** OS OpenHarmony supporting multiple devices like phone, TV and wearables
- Ported **Tensorflow.JS** library to OpenHarmonyOS implemented in **extended TypeScript** based paradigm
- Deployed various pre-trained classification and detection models integrated in native app and implemented new models such as **Selfie Segmentation** and **Spam** detector
- Built an **API** using JavaScript for pre-processing datasets in **JSON** and CSV format to make it suitable for training.
- OpenHarmonyOS developers worldwide can use this framework to **deploy AI & ML models** in their app by loading pre-trained models or training a new model

Skills

Programming: C/C++, Python, MATLAB, R, SQL
Libraries: NumPy, Pandas, Tensorflow, Keras
Tools & Web: HTML, CSS, JavaScript, Node.js
Utilities & Softwares: Linux, Git, DevEco Studio, LaTeX

Positions of Responsibility

Senior Technical Team Member
IITK MotorSports May '21 - June '22

- Spearheaded a group of 5 students to design Accumulator and BMS for Formula Bharat Virtuals 2021 competition .
- Devised a Business plan pitch for **INR 10 crore** for a startup based on Formula Student electric vehicles and **ranked 3rd** among all national teams in Formula Bharat.
- Managed team recruitment tests and interviews of 50+ freshman students and mentored introductory projects.

Relevant Coursework

Machine Learning for Signal Processing
Data Structures and Algorithms
Fundamentals of Computing
Theory of Computation
Probability & Statistics
Modern Cryptology
Digital Networks
Linear Algebra
Financial Economics
Advanced Calculus

Projects

Reposing humans using 3D features
Electronics Club, IIT Kanpur May '21 - Jul '21

- Worked in a team of 6 to implement an **end-to-end pipeline** to transform human images to the desired pose.
- Implemented a **GAN-based** approach to generate images by extracting inherent 3D features in unsupervised manner
- Formulated a **background-inpainter** to remove the foreground and adaptively fill the background of an image.
- Achieved **SSIM score** of **.93** on DeepFashion and *iPER* benchmark and it can overcome many challenges in filmmaking and animation industry.

Lane Detection for Autonomous Driving
Self Project May '21 - Jul '21

- Developed a **CNN** based lane detection network using **Keras & OpenCV** libraries to output predicted lanes
- Used over 20000 images gathered from 12 videos in addition to various **data augmentation** techniques to enhance the dataset
- Achieved an **IOC score of 83%** even in harsh weather

Formula SAE Electric *IITK Motorsports*
Advisor: Prof. Ramprasad Potluri, IIT Kanpur Mar '20 - Aug '21

- Worked on the development of **software** of distributed Battery Management System for Electric racing car and designed its **hardware** using modular approach.
- Developed embedded system of BMS in **object oriented programming** manner, performed its code analysis and gained experience in handling large codebases.
- Implemented various **BMS algorithms** and created a web interface using **Javascript** for **real-time monitoring** of parameters of performance of cell modules.

Markowitz Portfolio Optimization
Coursera Project Network Jul '22 - Aug '22

- Used **Modern Portfolio Theory** to analyze risk and return of different stocks and their relation with each other
- Eliminated the **diversifiable risk** to obtain optimal weights for maximum **Sharpe ratio** and **minimum variance** portfolio thus maximizing risk adjusted return
- Analyse the individual portfolio using **Efficient Frontier** by considering the individual **investor's risk tolerance**

Miscellaneous

- **Senior Academic Mentor**, IIT Kanpur
  Mentored a group of over 200 UG students over concepts involving Probability & Statistics
- **Principal Security Officer**, Udghosh'21
  Led a 3-tier team of more than 10 security officers to oversee the security arrangement in college festival
- **NCC Cadet**, Participated in various parades