Shiven Tripathi

Sophomore Undergraduate
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Educational Qualifications

Year	Degree	Institution(Board)	CGPA/%
July'19 – June'23 (expected)	B.Tech, EE	Indian Institute of Technology, Kanpur	9.4/10.0
2019	CBSE – XII	Delhi Public School, Greater Noida	93.8%
2017	CBSE – X	Delhi Public School, Greater Noida	10.0/10.0

Scholastic Achievements

- **Top 0.5%**, *JEE-Advanced* (amongst 160,000 candidates)
- **All India Rank 208**, *JEE-Main* (amongst 1.3 million candidates)
- **All India Rank 6**, *UPSEE* (amongst 200,000 candidates)
- **NTSE Scholar, 2017**, **Top 0.07%** to be awarded scholarship by NCERT (from 1 million candidates)
- **KVPY-SX Fellow, 2019**, **Top 1%** to be awarded fellowship by DST, India (from 100,000 candidates)
- **Top 1%**, National Standard Examination in **Physics**, 2019

Work Experience

Team ERA-IITK *Science and Technology Council*
Software Team March 2020 - Present

- Implemented various object detection and tracking modules for the armoured bot using traditional CV based techniques and DL methods like YOLO.
- Tested out Deep Reinforcement Learning methods on pygames as a proxy to the training of the bot to target and attack enemy bots. ShivenTripathi/Deep-RL

Team Humanoid-IITK *Science and Technology Council*
Software Team Nov 2019 - May 2020

- Implemented obstacle detection modules for the Humanoid Robot using potential field mapping. ShivenTripathi/humanoid_ws
- Worked with OpenCV and ROS to build efficient nodes solving CV tasks like detection, tracking, depth mapping.

Skills

Programming Languages: C++, Python, C
Data Science: Tensorflow, Keras, Scikit, MATLAB
Robotics: ROS, OpenCV, Arduino, Gazebo, Gym
Utilities: LaTeX, Git, Bash, Processing

Positions of Responsibility

- **Coordinator**, *Debating Society, IIT Kanpur 2020-21*
- **Secretary**, *Robotics Club, IIT Kanpur 2020-21*
- **Senator**, *Students' Gymkhana, IIT Kanpur 2020-21*
- **Senior Member**, *Vox Populi, IIT Kanpur 2020-21*
- **Secretary**, *Academics and Career Council, IIT Kanpur, 2020-21*

Miscellaneous

- Competed in DSDC Coherence(July 2020), a Debating Tournament with over 200 speakers and finished as **Finallist** and amongst the **Top 10 Speakers**
- **Published** articles on various themes like 'Mental Health', 'NIRF Rankings', 'Research in Corona' under **Vox Populi**

Projects

Fashion Intelligence Systems ShivenTripathi/GRiD-Software
Flipkart GRiD 2.0 July 2020 - Sep. 2020

Implemented Machine Learning based model to identify trends in Fashion items and generate actionable insights on trendiness of products to build a portfolio.

- Used open sourced MMFashion models to identify attributes and get features representative of styles.
- Built Fashion Vectors using a priority list obtained from the modified output MMFashion model to get individual trend ranks.
- Applied dimensionality reduction techniques like tSNE and then did clustering using kMeans to obtain visually distinct style clusters.

Finished in the Top 3 teams over India under the problem statement of Fashion Intelligence Systems from over 9200 teams.

Autonomous Indoor Drone
Flipkart GRiD 2.0 July 2020 - August 2020

- Studied and experimented various techniques related to 3D mapping of environment and maneuvring an autonomous drone.
- Evaluated approaches for building and completed simulations in a Gazebo environment.
- Employed colour segmentation and contour detection to identify gates, using Visual SLAM methods for mapping and navigation.

Finished amongst the Top 50 teams over the country to reach the Round 3 Qualifiers.

Conversational Robot ShivenTripathi/ConversationalRobot
Robotics CLub, IIT Kanpur May 2020 - July 2020

Developed a "talking bot" capable of listening to user, identifying intent and speaking out a meaningful response.

- Studied various preliminaries for Natural Language Processing and implemented GloVe model for generating embeddings for text.
- Experimented with different ASR methods and implemented DeepSpeech 2 trained on a limited but augmented dataset consisting of audiobooks.
- Built hybrid pipelines for response generation using pattern recognising AIML along with Topic Aware Seq2Seq Deep Learning model.

PETCat, Biomimetics ShivenTripathi/PETcat_vision
Robotics CLub, IIT Kanpur May 2020 - Present

- Working in the Vision subteam of the PETCat project which aims to build Biomimetic Robots.
- Implemented Face and Emotion Recognition modules using classic CV approaches combined with CNN architectures.
- Integrated individual modules into ROS nodes for easy deployment and functionality for the robot.

Relevant Coursework

Fundamentals of Programming (A)	Linear Algebra and Ordinary Differential Equations (A)	Real Analysis and Calculus (A)
Data Structures and Algorithm (*i*)	Complex Analysis and Partial Differential Equations (*i*)	Introduction to Microeconomics

A: Grade for excellent performance, *i*: In progress