

Harshit

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EDUCATION

National Institute of Technology, Kurukshetra, *Bachelor in Technology in Electrical Engineering* 2021 – present | Haryana

- **Modules:** Basics of programming, Modeling and simulation, Differential and Integral Calculus, Control System, Applied Linear Algebra, Multivariable Control, Microprocessor and Microcontroller.

D.A.V. Centenary Public School, Sirsa, *Higher Secondary School Certificate (XII)* 2019 – 2021 | Haryana

- **Modules:** Physics, Chemistry, Mathematics, English, Physical Education.

PROJECTS

Sign Language Detection | *Action Recognition, Convolutional Neural Network* – [\[Code\]](#) July 2023

- Built a Real-time Action Detection model to decode sign language, empowered by LSTM layer for enhancing effectiveness.
- Extracted **MediaPipe Holistic Key Points** for palm and pose detection using the Mediapipe library for training and testing.
- Developed a robust deep neural network using **Tensorflow & Keras**, utilizing a Stacked LSTM layer to effectively process and analyze the pattern from the sequences of detected holistic key points for real-time sign language decoding.

Facial Recognition Application | *Siamese Neural Network, KivyMD* – [\[Code\]](#) August 2023

- Built a deep facial recognition application for face authentication integrated into a **Kivy application**.
- Built a model **Siamese model** using **Tensorflow and Keras**, Implemented data augmentation and dropout methods to improve generalization and reduce overfitting. [\[Siamese Neural Networks Research paper\]](#)
- Developed a Kivy Application integrated with the DL model, achieving a perfect **precision & recall of 1**.

ChatBot Kivy Application | *Deep Natural Language Processing* – [\[Code\]](#) October 2023

- Developed a Chatbot using **Deep Natural Language Processing (DNLP)**, enhancing conversational interactions.
- Implemented and Trained a **Seq2Seq DeepNLP** model using the **Cornell Movie Dialogs Corpus** dataset.
- Employed **stacked LSTMs and Attention Mechanisms** for effective context understanding and response generation.
- Developed a Kivy Application seamlessly integrated with the model, enabling real-time, human-like interaction.

MuJoCoAI | *Deep Reinforcement Learning, Q-Learning* – [\[Code\]](#) August 2023

- Implemented a **Deep Q-Network and A3C** model to enhance robust decision-making in *Non-Deterministic environments*.
- Created a **real-time customizable environment and car**, for *self-driving* using kivy and *Lunar Lander* from *OpenAI Gym*.
- Implemented **Twin Delayed DDPG** model to find the optimal policy for the **Markov Decision problem** and achieved high cumulative rewards in complex MuJoCo environments such as *Ant, Half Cheetah, and Humanoid*.

TECHNICAL SKILLS

Languages & Libraries: C/ C++ , python, MATLAB/Simulink, Numpy, Pandas, TensorFlow, Keras, Matplotlib, OpenCv, Scikit-learn, Seaborn, Data Structure and Algorithms in C++ | **Web-Development:** CSS, HTML, javascript, Bootstrap. |

Developer Tools: Visual Studio Code, Jupyter Notebook, Google Collab, MATLAB, PyCharm.

AREA OF INTERESTS

Deep Reinforcement Learning | Self-Supervised Learning | Artificial intelligence | Computer Vision | Generative AI | NLP

ACHIEVEMENTS

Smart India Hackathon - Winner(Intra College), *Team Leader & AI Developer* 2023 | NIT, KKR

- Led a victorious team, showcasing AI development skills and strategic leadership in a prestigious nationwide hackathon.

Extracurricular | *Sports & Athletics*

- Represented Haryana Cricket Association in *U14 & Vijay Merchant Trophy (U16)* cricket tournaments.
- Competed in the *U14 State Level Basketball* Tournament representing Sirsa.
- Achieved a **bronze medal** in **Taekwondo & Wushu** at the *U17 Khelo India Youth Games district-level tournament*.

POSITION OF RESPONSIBILITY

Industry and Entrepreneurship Cell ([I&E-CELL](#)) | NIT Kurukshetra, *Member of Technical Team* 2021 – 2022

Embedded System and Robotics Club ([EMR](#)) | NIT Kurukshetra, *Member of AI/ML and DIP Team* 2022 – present

- Volunteered in workshop, educating participants on constructing and operating **line following & remote-controlled bot**.
- Participated in a workshop organized by EMR on **DIP (Digital Image Processing)** focusing on **OpenCV, numpy, python, And PyAutoGUI** and made a *Gesture control video player project* .