

Dheeraj Racha

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EDUCATION

- **Indian Institute of Technology Hyderabad** Hyderabad, India
Bachelor of Technology in Electrical and Computer Science Engineering; GPA: 8.67/10 Aug. 2017 – Present
- **FIITJEE Junior College** Hyderabad, India
Senior Secondary School, Telangana Board; 97.1% June. 2015 – May. 2016
- **Jawahar Navodaya Vidhyalaya** Medak, India
Secondary School, CBSE Board; GPA: 10/10 June. 2013 – May. 2014

PROFESSIONAL EXPERIENCE

- **Hexagon Capability Center India** Hyderabad, India
Summer Internship, Manager: Somanchi Chandrasekharam May. 2020 – July. 2020
 - Developed an efficient data loader to parse pdf documents maintaining its semantic structure.
 - Compared the performance of neural networks in the classification of product-related documents when extracted headings/content from the documents.
 - Used autoencoders for recommending similar documents.

ACADEMIC PROJECTS

- **Solving Games with Reinforcement Learning** [Project Code](#)
Reinforcement Learning course project March. 2020 – April. 2020
 - Implemented deep reinforcement learning algorithms like SARSA, DQN and Policy Gradients for training agents to play PacMan, Pong, etc in OpenAiGym environment.
- **On Deep Learning based Channel Decoding** [Project Code](#)
Under Dr. Sai Dheeraj Amuru, Dept of EE, IITH. March. 2020 – April 2020
 - Used classical neural networks with custom layers (for BPSK modulation and AWGN channel) to decode polar codes, a linear block error-correcting code.
- **Event Detection in Social Streams** [Project Code](#)
Data Mining Course project September 2019 – November. 2019
 - Developed a real-time system for discovering events (modelled as a list of clusters of trending entities over time) that is novel in scale and speed.
 - Considered both the content and structure of the interactions between entities for event detection. And used a sketch based technique to maintain node statistics in a space-efficient way. Achieved an average cluster purity of 0.32.
- **Voice Controlled Robotic Car** September 2019 – November. 2019
Under Dr. G.V.V. Sharma, Dept of EE, IITH
 - Built a robotic car from scratch which can be controlled from smartphone via bluetooth.
 - Trained a neural netowrk to recognize speech commands (Left, Right, Forward, Backward, Stop) to give to the robotic car as input commands.
- **Image Matching** [Project Code](#)
Under Dr. Sumohana Channappayya, Dept of EE, IITH. February. 2019 – August. 2019
 - Worked on DeepMatching and SimNets for finding the confidence of similarity between images.
 - Studied the performance of state-of-the-art semantic segmentation models on aerial image dataset. Achieved a mean IoU of 78.2% and mean accuracy of 93.4% with DeepLab-v3 architecture.

TECHNICAL SKILLS

- **Languages:** Python, C++, C, \LaTeX , PostgreSQL, Assembly
- **Softwares and Packages:** Tensorflow, Keras, Scikit-learn, OpenCV, Plotly, Matlab, Raspberry Pi, Arduino
- **Code Versioning:** Git
- **Virtualization Software:** Docker
- **Operating Systems:** Ubuntu, Windows

COURSE WORK

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|-------------------------------------|---|
| Reinforcement Learning | Deep Learning |
| Mathematics behind Machine Learning | Machine Learning Applications for Wireless Communications |
| Data Mining | Data Structures |
| Algorithms | DBMS |
| Data Analytics | Internet of Things |

ACHIEVEMENTS

- Secured AIR 3850 in IIT-JEE 2017
- Secured AIR 4227 in JEE-MAINS 2017
- Secured a state rank 421 in TS-EAMCET 2017

POSITIONS OF RESPONSIBILITY

- Teaching Assistant for Differential Equations.
- Active NSS Volunteer.