Harish Rajagopal

Second Year Undergraduate
Major in Computer Science and Engineering
IIT Kanpur

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Educational Qualifications

Course	Year	Board/Institute	Marks
B.Tech	2016 - Present	IIT Kanpur	9.74*/10.0 CPI
Secondary	2014	Maharashta S.S.C	93.6%
Sr. Secondary	2016	Maharashta H.S.C	90.46%

∗ upto 3rd semester

Academic Achievements

- Secured **A*** grade in **ESC101: Fundamentals of Computing**, **MTH102: Linear Algebra and Ordinary Differential Equations**, PSY151: Introduction to Psychology, and TA101: Engineering Drawings.
- Secured All India Rank of **185** in **JEE (Advanced) 2016** given by about 2 lakh students.
- Secured All India Rank of **205** in **JEE (Mains) 2016** given by about 14 lakh students.

Work Experience

- **Machine Learning Intern, *New York Office, IIT Kanpur*** (May '17 - July '17)
  - Created scrapers for various websites to obtain content using *BeautifulSoup* and store scraped data on Couchbase.
  - Created and trained a *Word2Vec* model using *Gensim* to compare scraped article contents using *Word Mover's Distance*.
  - Trained a character recognition CNN with sliding windows to scan images to identify English alphanumeric characters.

Projects

- **Depression Therapy Chatbot using Sentiment Analysis** (May '17 - July '17)
  https://www.facebook.com/Chatbot.Brad
  - Used a *Word2Vec* model to create a *Sentiment Analysis* model in Python using LSTMs in Keras.
  - Implemented a chatbot using manually-created responses dependent on sentiment classification.
  - Used the *Heroku* platform to host the bot and integrated it with Facebook Messenger in Python.
- **Learn to Play Atari Games using Reinforcement Learning** (Jan '17 - July '17)
  - Used *Dynamic Programming* techniques for policy and value iteration to solve an *MDP* using *OpenAI Gym* environments.
  - Implemented on-policy and off-policy *Monte Carlo* control, *SARSA*, *Q-Learning* and *DQNs* for *MDPs* in Python.
  - Wrote programs to learn playing Atari Pong using both Policy Gradients and DQNs separately.

GitHub Projects

- **Generalisation of Deep Learning Networks**
  - Project to recreate results of the paper *"Understanding Deep Learning Requires Rethinking Generalization"*.
  - Implemented mini Inception, mini Alexnet and two different MLPs to classify images on CIFAR10, with and without regularization, and with random labels.
  - Now implementing Inception v3 on the ImageNet LSVRC 2012 dataset.
- **Inter IIT - Tech Meet**
  - Worked on two problem statements: Exoplanet detection and Fiducial Localisation in Medical Images.
  - Exoplanet Detection: Implemented LSTMs combined with anomaly detection using beta distributions for skewed dataset of sequences of light intensities of planets.
  - Fiducial Localisation: Used Shi-Tomasi algorithm to identify corners of fiducials after canny-edge detection and used Hough transform to capture circular faces.

Technical Skills

- **Programming Languages:** Python, C/C++, Octave, LaTeX, Bash, HTML
- **Software and Utilities:** TensorFlow, Keras, Gensim, OpenCV, Numpy, Couchbase, Git, Microsoft Visual Studio, AutoCAD

Positions of Responsibility

- **Secretary**, Programming Club, IIT Kanpur (August '17 - Present)
- **Academic Mentor**, Counselling Service, IIT Kanpur (March '17 - Present)