Mayank Saxena

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Education

Columbia University — New York, NY
Master of Science in Computer Science (Machine Learning Concentration) — *Aug 2018 – Dec 2019 (Expected)*

Delhi Technological University (Formerly DCE) — New Delhi, India
Bachelor of Technology in Mathematics and Computer Science — *May 2018*

Experience

- **IBM India Research Laboratory** — New Delhi, India
  Research Intern — *Sep 2017 - Jan 2018*
  - **Gender Bias Detection and Analysis**: Detected and analyzed over 10,000 Bollywood movie videos for existence of gender bias and stereotyping using Computer Vision and NLP techniques.
  - **De-Biasing Text**: Developed techniques for removing bias and writing gender-neutral plots for films through event graph generation and semantic role labelling.
- **Carnegie Mellon University** — Pittsburgh, PA
  Research Intern - Robotics Institute Summer Scholar — *Jun 2017 - Aug 2017*
  - **Behavior Action Prediction Model**: Developed a prediction model for RoboTutor - an Intelligent Tutor System (ITS) , to predict the next course of action of the student in real time. RoboTutor is $ 1M finalist for the $ 15M Global Learning XPrize Competition.
  - **User Engagement Improvement**: Deployed the prediction model on the Android platform and hence, enhanced user engagement by allowing ITS to dynamically change its content in real-time.
- **Cube26** — New Delhi, India
  Software Developer Intern — *Dec 2015 - Mar 2016*
  - **Application**: Developed an Android widget for displaying frequent contacts as a stock application for all Karbonn Android Phones. It is currently being used by more than a million people in India.
  - **Running Time**: Improved previously used algorithm by reducing running time by nearly 10% by using hashmaps, background services and cache.

Projects

- **Detecting Influential Nodes in a Social Network Graph**: Developed and implemented own algorithm - "Extended Neighbourhood Coreness Centrality" for detecting influential nodes in a Social Network graph. The results obtained were comparable and better in some cases to Pagerank, Degree centrality and k-core centrality algorithm.
- **YouTube Video Like Count Prediction**: Developed a Stochastic Gradient Descent based Regression Model to predict the like count of a given YouTube video. Some of the tasks involved collection and cleaning of data, feature engineering, modelling and visualization of the data.
- **Twitter Bot Detection**: Built a classification model to classify a given Twitter user as a human or a bot. Achieved 90% accuracy by using features such as followers/following count of user, time-stamp and sentiment of tweets etc.
- **Pedagogically Relevant Emotion Detection**: Using Machine Learning, developed an emotion recognition framework for detecting pedagogically relevant emotions such as confusion, boredom, surprise, delight and frustration in real time.
- **Depth Perception in Images**: Developed a model for detecting foreground and background objects in images using Neural Networks and Image Segmentation.

Programming Skills

Languages: C++, C, Python, Java, MATLAB, R **Frameworks**: TensorFlow, Keras, Pandas, Android SDK

Publications

- **M. Saxena, R. Pillai, J. Mostow**: Relating Childrens Automatically Detected Facial Expressions to their Behavior in RoboTutor, AAAI 2018
- **N. Madaan, S. Mehta, , M. Saxena, A. Aggarwal, T. S Agrawaal, V. Malhotra**: Analyzing Gender Stereotyping in Bollywood Movies, FAT* 2018