SUMEET AGRAWAL

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EDUCATION

University of Southern California (CGPA: **3.5**) MS, Computer Science (Specialization in Data Science) **Expected May 2018**
Vellore Institute of Technology, Vellore (CGPA: **3.8**) B. Tech, Computer Science and Engineering **May 2016**

WORK EXPERIENCE

Data Science Researcher **Integrated Media System Research Centre, USC** **Sept 2016 - Present**

- **Tweet Mining**: Enhanced situational awareness during disaster by visualizing and classifying disaster-related social media data.
- **Image Geolocalization**: Devised a framework to extract image features (SIFT, fine-tune CNN) and produced geotagged Images.
- Co-author in 2 peer reviewed research papers in highly prestigious conferences and journals, **IEEE BigMM** and **IEEE DSAA**.

Data Scientist **Archie.AI, San Francisco** **June 2017 - August 2017**

- Delivered a real-time Anomaly detection model using K-means clustering and moving average technique for classification.
- Built a Google AdWords optimizer using Recurrent Neural Networks, Principal Component Analysis and Word Embedding that predicted number of Ads impressions in a time period and classified the type of user that will most likely click the Ad.

Project Software Engineer **IIT, Indian Institute of Technology, Mumbai** **Jan 2016 - July 2016**

- Lead the team of project "**Jellow**" **-** Developed and designed a multilingual Alternative & Augmentative Communication (AAC) App especially for children suffering from Cerebral Palsy (difficulty in speaking) and for a general Educational purpose.
- Deployed a preference algorithm and performed server-side user data analysis using PHP, MySQL, Java and Python2.7
- "Jellow" App won the **Nipman Foundation Microsoft Equal Opportunity Awards** 2017 under the Innovation (Tech) Category.

Software Developer **Blazingtrail, India** **May 2015 - July 2015**

- Programmed an information capturing app "**DigiDocs**" that precisely stored, shared, annotated and managed documents.
- Integrated OpenCV, canny edge detection, Gaussian Blur and OCR Tesseract libraries for image processing and text extraction.

TECHNICAL SKILLS

Programming Languages: Python2.7 (5 Years), Java (7 Years), C++ (7 Years), C, PHP, HTML5/CSS, Octave**.**
Machine Learning Technologies: Scikit – Learn, Spark, Caffe, Weka, AWS, Hadoop, HBase, TensorFlow, Keras.
Software and Database Tools: Flask, SQLAlchemy, Heroku, Ubuntu, Android Studio, Unity3D, Docker, MySQL, SQLite.

PROJECT EXPERIENCE

Deep Neural Network - Storytelling from Image Sequence **Sept 2017 - Dec 2017**

- Devised a Deep Visual Neural Network (CNN and LSTM) model to generate a cohesive narrative story for a sequence of Images.
- Adapted VGG-19 model to extract sequence image features, trained CNN and LSTM to convert the Image features to a single image sentence embedding and finally build a skip vector encoder and decoder model to map image captions to stories.

Automatic Question Generation Model (Jeopardy Game) **June 2017 - August 2017**

- Developed a data acquisition app that collected multiple questions for each sentence type by replicating the "Jeopardy" Game.
- Used JS and BubbleBot API for the interface, Flask and python to create the server and SQLAlchemy for database creation.
- Engineered a Generative Adversarial Network that auto generated realistic yet fake questions similar to a human response.

Geo-spatial Multimedia Sentiment Analysis, Info Lab at USC (Sponsors – Google, NSF, Oracle) **Jan 2017 - June 2017**

- Designed a framework that normalized multiple data type (image & text) sentiments in spatial and temporal dimensions.
- Captured visual sentiment using Convolutional neural network (CNN) and SentiBank model. Preprocessed text using tokenization technique and performed text sentiment analysis by incorporating SentiStrength, CoreNLP and NLTK models.

Social Urgency Map, Information Lab at USC (Sponsors – Google, NSF, Microsoft) **Sept 2016 - Dec 2016**

- Created a model that prioritized media data generated during Disaster Crisis to help first responders make critical decisions.
- Performed analyzes on 11 different disaster types and classified data points into relevant or not relevant with 86% accuracy.
- Adapted Machine Learning techniques such as NLTK, Word2Vec, Latent Semantic Indexing and SVM for classification.

Fit-Bit for Brain using Muse Headband **February 2017**

- Developed a Brain app that tracks and reports user concentration level using the EEG values generated by muse headband.
- Integrated Azure Machine Learning studio and implemented Decision tree model to achieve 83% classification accuracy.

MedHap (Cal Hacks 3.0 Hackathon) – Among Top 5 teams **November 2016**

- Build a medical app that instantly scanned and communicated patient's skin abnormality image to dermatologists for analysis.
- Used **Tanvas** Haptic SDK to generate dynamic skin textures and Watson's visual recognition API for skin disease classification.
- Worked on a Surface haptics technology that controlled forces acting between a fingertip and the mobile surface in real time.

HIGHLIGHTS

- Wrote an article on Generative Adversarial Networks on Medium.com, which got featured under Artificial Intelligence section.
- Published 3 Machine Learning video tutorials showcasing various concepts and building them from scratch within few minutes.
- Published android apps on Google Play Store: Voice Reader, D'source, Seatrr Dish Discovery and Jellow Communicator app.