Aniruddha Sinha

Portfolio: www.linkedin.com/in/asinha6 Email: asinha6@buffalo.edu
Github: https://github.com/aniruddhasinha10 Mobile: +1-716-544-8716

Education

- **University at Buffalo (UB) — The State University of New York** Buffalo, New York
  Master of Science - Computer Science; GPA: 3.482 *Aug'18 - Dec'19*
- **Tezpur University** Tezpur, India
  Bachelor of Technology - Electronics & Communication Engineering.; CGPA: 8.43 *Aug'13 - Jun'17*

Skills

- **Languages**: Python, Java, SQL, R, C
- **Web Tech**: HTML5, CSS3, Javascript
- **Frameworks**: Beautiful Soup 4, Scikit-Learn, NLTK, TensorFlow, Keras, Google BERT, OpenNLP
- **Tools**: AWS, Docker, GIT, Apache Spark, Apache Hadoop, MySQL, noSQL, Tableau

Experience

- **Project Volunteer — Dept. of Behavioral Medicine, UB** *Jun'19 - Present*
  - Working on a project for Human Behavior Analysis and Modification using text, audio and facial micro-expressions in the background of Episodic Future Training (EFT).
  - Processed data from EFT studies and performed EDA for finding prominent features in text inputs and computing a happiness score on the text using NLP.
  - Used NLTK, Spacy and Google BERT for text analysis through transfer learning, feeding the features with other inputs in a Random Forest model for training.
  - Developed a Deep Learning model for human facial micro-expression analysis to study the correlation between micro-expressions and reducing impulsive decision making.
  - Convened meetings with a team of Behavioral Medicine Researchers (clients) to understand objectives; shared developments by bridging the gap of knowledge of each other's domains.
- **Graduate Assistant — Artificial Intelligence Innovation Laboratory (A2IL), UB** *Jan'19 - Jan'20*
  - Prepared a pipeline for a project aimed at Ground Truth Generation from Biomedical Text Archives for training Machine Learning models.
  - Built an XML parser from scratch for over a million National Institute of Health's (NIH) Pub Med Central text archives using Beautiful Soup 4 and Python3.
  - Annotated all referenced and referencing objects in the journal's text and visualized it using the BRAT annotation tool.

Projects

- **Generate Movie Recommendations (Independent Project)**
  Skills: Apache Spark, SQL, AWS EMR *Mar'20*
  - Generated the 10 most popular movies in the movieLens dataset of 1M movies using movie ratings and found the 10 most similar movies to each of them using Item-based collaborative filtering in Spark. Used 1 GB of executor memory on the EMR cluster.
- **Finding Degrees of Separation (Independent Project)**
  Skills: Apache Spark *Mar'20*
  - Implemented Breadth-First Search on a dataset of Marvel superheroes to find the degrees of separation between two superheroes using accumulators in Spark.
- **Maritime Vehicle System Data Analysis** UB, USA
  Skills: Python3, OpenCV, Keras, YOLO, CUDA *Jun'19 – Dec'19*
  - Developed a mechanism for depth-perception in maritime vessels, to a distance of 2 miles, with stereoscopic cameras using computer vision and deep learning (as an alternative to LIDARs) for automated docking and navigation. Performed real-time object detection by customizing YOLO v3 models for maritime environments.
- **Big Data Analytics of US Politics, early 2019** UB, USA
  Skills: R, Python, AWS(EMR & EC2), Hadoop HDFS, Tableau *Feb'19 – Apr'19*
  - Cleaned and analysed trending political topics from Twitter, NY Times and Common Crawl APIs using Beautiful Soup4 and Python3.
  - Performed word count through Map Reduce on AWS EMR and generated a word-cloud on Tableau.
- **Agent Navigation using Reinforcement Learning** UB, USA
  Skills: Python3, Scikit Learn, Keras *Aug'18 - Dec'18*
  - Designed a deep Q-learning algorithm to teach an agent, Tom to catch Jerry, the goal, in the least number of steps in a Tom-and-Jerry chase game, in the background of reinforcement learning.
- **An IoT based Wearable Health Monitoring and Messaging System** Tezpur University, India
  Skills: C, Arduino Nano, Google Fusion Tables, MIT App Inventor 2 *Jan'17 – Jun'17*
  - Developed a wearable, Bluetooth prototype over a period of 16-20 weeks to monitor the real-time basic health parameters such as heartbeat, body temperature, and body impact values of the elderly and physically challenged people.
  - Built an Android app to display health parameters, calculate present health condition, and update relatives via text message with the GPS location of the patient.

Publications

- Munish Manas, Aniruddha Sinha, Shubham Sharma, M.R.Mahboob, **"A Novel approach for IoT based Wearable Health Monitoring and Messaging System"**, *Journal of Ambient Intelligence and Humanized Computing, Springer*, Nov 2018.