JITESH PABLA

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EDUCATION

Master of Science - Computer Science **Expected May 2021**
Arizona State University, Tempe, AZ GPA: 4.0/4.0
Courses: NLP Methods for Biomedical Text Mining, Statistical Machine Learning, Introduction to Artificial Intelligence, Data Intensive Systems for Machine Learning, Perception in Robotics, Introduction to Human Computer Interaction

Bachelor of Technology (with honours) - Computer Science and Engineering **May 2019**
Jaypee Institute of Information Technology (JIIT), Noida, India CGPA: 8.1/10
Courses: Data and web mining, Introduction to Deep Learning, Artificial Intelligence, Statistics, Quantitative methods for social sciences, Data structures, Algorithms and Problem Solving

TECHNICAL SKILLS

Languages: Proficient: Python, C++, SQL; Competent: C, Lua, PHP; Some knowledge: JavaScript, Java
Misc: Tools: Git, GitHub, Jupyter Notebook, Anaconda; OS: Linux, Windows; Hardware: Arduino, Raspberry Pi; Machine Learning: NumPy, Pandas, Scikit-learn, Matplotlib, Keras, PyTorch, TensorFlow
Certifications: Deep learning specialization - deeplearning.ai (Coursera)

WORK EXPERIENCE

Graduate Service Assistant, Arizona State University, USA **January 2020 – present**
- Currently working under Dr. M. Devarakonda on classifying "Rigorous" studies from over 50,000 PubMed articles by modifying the Bidirectional Encoder Representations from Transformers (BERT) architecture and manipulating its inputs along with various NLP techniques using PyTorch and transformers.
- Visualizing the attention architecture in BERT and the effects of modifications made to it and its inputs for better understanding.

Participant with LuaRocks -The Lua package manager, Google Summer of Code 2018 **June – August 2018**
- Refactored the core functionalities of LuaRocks commands for - listing, uninstalling and showing details of packages, searching and installing rocks from the web, opening documentation, linting the rockspec, selecting a rock-tree etc., to modularize them.
- Programmed a complete Application Programming Interface (API) to provide access to the LuaRocks functionality using Object-Oriented design patterns.
- Designed a responsive and interactive web-based GUI using HTML, CSS, Bulma and Vue.js to give access to the LuaRocks functionality. Interfaced the GUI with the LuaRocks-API in the backend using CGILua.

Intern, Python development, Internity Foundation and Rannlab Technologies Pvt. Ltd., India **June – August 2017**
- Applied machine learning models like - K Nearest Neighbours (KNN), Support vector machines (SVMs), logistic regression etc. for classification on various datasets utilizing NumPy, Pandas and Scikit-learn.
- Built a proof-of-concept chatbot based on Stanford's CS20 chatbot by implementing a seq2seq model using TensorFlow, trained on Cornell's movie dialogue corpus.

Intern, Data analysis, Team Computers Pvt. Ltd., India **June – July 2017**
- Applied data preprocessing techniques, statistical and machine learning methods such as moving averages, linear regression, spectral clustering etc. on dummy datasets using "Alteryx" (a data science tool).
- Predicted prospective car customers using car sales and inquiry data (with millions of data points spanning across 1 year) using time series analysis as an individual project.

ACADEMIC PROJECTS

Clinical Semantic Textual Similarity (STS) **August – December 2019**
- Preprocessed the clinical text to remove stop words, punctuation etc. and utilized various word2vec pre-trained models to extract token embeddings in order to create a single vector representation for each sentence.
- Fine-tuned multiple BERT models on the given STS dataset and extracted vector representation for each sentence.
- Engineered several similarity features based on the extracted sentence vectors and applied gradient boosting regression to achieve a Pearson correlation greater than 0.84 between the ground truth and the model's predictions.

Text-to-face generation **August 2018 – May 2019**
- Investigated and summarized various methods for facial image generation using a text description of a face.
- Collected a dataset of text descriptions of hundreds of images from LFW dataset and utilized word2vec to create text embeddings.
- Programmed a Keras implementation of StackGAN (a variation of Generative Adversarial Networks) and trained it to generate facial images using the collected dataset.

Crop yield prediction based on temperature and rainfall for India **September – November 2018**

- Predicted the temperature and rainfall for a set of Indian districts using Recurrent Neural Network (RNN) and it's variation Long short-term memory (LSTM) and selected the method with the least mean absolute error.
- Utilized the rainfall and temperature prediction to further predict the yield of various crops in Indian districts using different methods - Linear regression, Random Forests, K- nearest neighbours (KNN) and a Feed-Forward Network; performed a comparative analysis for all the methods with Random Forests giving the least error.
- Used Pandas, NumPy, Scikit-learn, Keras and Matplotlib on Jupyter notebook for implementation.

Developing a Secure Soldier Monitoring System using Internet of Things and Blockchain **January – May 2018**

- Built a compact health and location monitoring system for soldiers in a battlefield using Raspberry Pi, Arduino and sensors to capture body temperature, heart-rate and GPS coordinates, along with a panic button and LCD to display messages.
- Re-engineered a blockchain prototype in Python to store AES encrypted data being transmitted from the monitoring system via GSM in an immutable and trustworthy fashion.
- Accepted to be published in 2019 International Conference on Signal Processing and Communication.

Anomaly detection on Intel lab data **September – November 2017**

- Applied simple moving average (SMA), Density-based spatial clustering of applications with noise (DBSCAN) and LSTM to detect anomalous readings from various sensors in the dataset.
- Used Pandas, NumPy, Scikit-learn, Keras and Matplotlib for implementation.

ACTIVITIES

Student mentor, 'Algorithms and Problem Solving lab' and 'Artificial intelligence lab' at JIIT, Noida, India **July 2018 – May 2019**

- Assisted professors with setting assignments, proctoring exams and solving student doubts for a class of sixty students.

Workshop teacher, Computational Methods for Medical Image Analysis, India **April 2019**

- Taught Image segmentation using Python to faculty and graduate students.

Student Coordinator, Open Source Developers Club at JIIT, Noida, India **July 2017 – May 2018**

- Coordinated, organised and taught at various workshops, meetups and hackathons with hundreds of participants.

Student Coordinator, Graficas - Graphics and animation Club at JIIT, Noida, India **July 2017 – May 2018**

- Coordinated, organised and taught at various workshops and competitions.

Director of digital and technical department, Jaypee Model United Nations at JIIT, Noida, India **September 2017 – January 2018**

- Managed and led a team of eight students to create the website, social media posts, physical posters, banners and booklets for the JMUN 2018 event - attended by over five hundred participants.