JITESH PABLA

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EDUCATION

Master of Science - Computer Science **Expected May 2021**
Arizona State University, Tempe, AZ GPA: 3.9/4.0

Bachelor of Technology (with honors) - Computer Science and Engineering **May 2019**
Jaypee Institute of Information Technology (JIIT), Noida, India CGPA: 8.1/10

TECHNICAL SKILLS

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

WORK EXPERIENCE

Graduate Service Assistant, Arizona State University, USA **January – May 2020**

- Classified 50k COVID-19 articles related to vaccines and therapeutics by scraping Google search results to obtain noisy data and training a scientific-text based Bidirectional Encoder Representations from Transformers (BERT) model called SciBERT.
- Ranked COVID-19 articles for queries relevant to vaccines and therapeutics by utilizing BERT as an embedding generator and finding each article's Cosine similarity with keywords related to vaccines etc. as a ranking criterion, and also by implementing a BM25 + RM3 approach.
- Identified Randomized Controlled Trials (RCTs) from over 50k PubMed articles by modifying the BERT architecture and manipulating its inputs along with various NLP techniques using PyTorch and transformers.
- Implemented a visualization to understand the attention architecture in BERT and the effects of modifications made to it and its inputs.

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 and used Git extensively for contributing to the main code-base.
- 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, 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 the Labelled Faces in the Wild (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.

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 on 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.
- Published in the 2019 International Conference on Signal Processing and Communication on IEEE.