Shivam Raval

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Education

Arizona State University Tempe, AZ

Master of Science in Computer Science; GPA: 4.17/4.00 *Aug 2019 - May 2021*

- **Relevant Coursework:** Algorithms, Natural Language Processing, Fundamentals of Statistical Learning, Data mining

Ahmedabad University Ahmedabad, India

Bachelor of Technology in Information & Communication Technology; GPA: 3.21/4.33 *Aug 2015 - May 2019*

- **Relevant Coursework:** Operating Systems, Machine Learning, Computer Vision, Computer Organization, Database Systems

Skills

- **Languages and Databases**: C, C++, Java, Python, R, Shell, Verilog HDL, MySQL, MongoDB
- **ML Libraries**: TensorFlow, PyTorch, Keras, JAX/Flax, Transformers, DeepSpeed, Scikit-Learn, Numpy, Pandas, OpenCV, NLTK, CUDA
- **Tools**: Hadoop, Apache Spark, AWS EC2, Anaconda, Jupyter, MATLAB, Andiod Studio, Latex, Xilinx ISE

Work Experience

NLP Data Scientist

American Express, New York, USA *Nov 2021 - Present*

- Working on enhancing and developing natural language features like smart compose, multi-lingual intent classification and summarization for American Express chat-bot to improve user experience and assist the customers through automation.

Data Science Co-op

Bayer Pharmaceuticals, New Jersey, USA *Jan 2021 - Nov 2021*

- Implemented language models like BERT and T5 to detect adverse drug events from various sources to generate Pharmacovigilance insight to identify the benefit and risk associated with the products. **(Research Papers published at EMNLP 2021)**

Intern - Artificial Intelligence for Radiology

Philips Research North America, Cambridge, USA *June 2020 - August 2020*

- Developed a deep learning model which can classify the chest X-ray by using both image features and text embeddings to automatically generate preliminary radiology report.
- Incorporated BioBERT and Clinical BERT embeddings along with using transformers with co-attention mechanism in the decoder.

Tutor, Computer Sciences

Arizona State University, Arizona, USA *Sept 2019 - Jan 2021*

- Mentored and assisted undergraduate students in courses such as data structures and algorithms, object-oriented programming, principles of programming, machine learning and other similar computer science courses.

Artificial Intelligence Engineer Intern

Emxcel Travel Solutions Pvt. Ltd., Ahmedabad, India *Jan 2019 - June 2019*

- Devised a Goal-Oriented Neural Dialog System (chatbot) and virtual personal assistant which can classify intents and slots from the requests raised by the users using natural language processing with LSTM and reinforcement learning.

Research Experience

Research Aide

Arizona State University, Arizona, USA *Sept 2019 - Jan 2021*

- Worked on natural language processing to implement an unsupervised approach for calculating the text-similarity between description of apps using BERT language model and developing an algorithm to calculate the node importance and perform clustering on a graph.

Publications

1. Shivam Raval, Hooman Sedghamiz, et al. “Exploring a Unified Sequence-To-Sequence Transformer for Medical Product Safety Monitoring in Social Media." in *Findings of the Association for Computational Linguistics: EMNLP 2021. pages 3534-3256, Punta Cana, Dominican Republic. Association for Computational Linguistics.*
2. Hooman Sedghamiz, Shivam Raval et al., “SupCL-Seq: Supervised Contrastive Learning for Downstream Optimized Sequence Representations" in *Findings of the Association for Computational Linguistics: EMNLP 2021, pages 3398-3403, Punta Cana, Dominican Republic. Association for Computational Linguistics.*

Projects

Temporal Relation Extraction in Clinical Texts *(Python, NLTK, Tensorflow)*

- Implemented Bio-BERT on top of a CNN with max-over time pooling to identify temporal relations in clinical texts.

Traffic Signs Detection and Recognition *(Python, OpenCV, Tensorflow)*

- Generalized Hough Transform was used to detect contours around traffic signs and dense optical flow to track the detected signs. The contours then was passed to a LeNet architecture trained on traffic sign database to recognize the sign.

Karuna Abhiyan *(Java, Android Studio, MySQL, PHP, Firebase Cloud Messaging, API’s: Maps, Phone, Camera)*

- It was an android application developed to help government wildlife care centers in Ahmedabad for faster and reliable rescue operations of injured birds and animals