Rishal Aggarwal

Gmail | Github | Linkedin | +917829294080

RESEARCH

KOES GROUP | UNIVERSITY OF PITTSBURGH
August 2019 – Present | Pittsburgh, PA

- Developed a model to predict the distance between an arbitrary pose and the true binding pose of a protein-ligand complex with high correlation between true and predicted values (0.768).
- Subsequently evaluated the performance of this model as a scoring function for pose ranking and docking. Current performance shows that the model is better at ranking poses when combined with an orthogonal empirical scoring function like Autodock Vina.
- Simultaneously worked on a new ML architecture, that uses a push down automata to generate strings according to a set of rules or grammar.
- Current performance shows to be better than standard deep learning architectures like the GRU.

PREPRINTS

LEARNING RMSD TO IMPROVE PROTEIN-LIGAND SCORING AND POSE SELECTION
Submitted to Chemarxiv Link

EXPERIENCE

GE HEALTHCARE | EID INTERN
May 2018 – July 2018 | JFWTC, Bangalore

- Got accepted as an 'Early Identification Intern' at GE Healthcare.
- Worked on segmentation of the vertebrae column using volumetric (3D) MRI body scan images and 3D convolutional networks.
- Achieved high accuracies with dice coefficient values above 0.85

PIXXEL | AI ENGINEER
May 2018 – Sep 2018 | BITS Pilani, Pilani Campus

- Worked at Pixxel, a space-tech startup at Bits Pilani, on developing algorithms that could predict amount of crop harvest at the end of Rabi and Kharif crop seasons in India using multispectral landsat imagery.
- Lead the project team on the next steps like calculation of the right spectal bands, simulation of crop growth etc.

LAZADA (AN ALIBABA COMPANY) | DATA SCIENCE INTERN
May 2017 – July 2017 | AXA Tower, Singapore

- Improving customer experience on the Lazada online platform by removing duplicate product listings through NLP and string manipulation. https://www.lazada.sg/ .
- Created a logic on multi-sourcing products with similar product titles in different languages such as Thai, Vietnamese and English.

PROJECTS

3D CNN FOR ALZHEIMER'S DETECTION | PET PROJECT
Dec 2017-March 2018

- Developed a data pre-processing pipeline for 3D brain MRI T1 weighted scans to be fed into a Deep Convolutional neural network to support classification of diagnosing Alzheimer's Disease using the MRI image.
- Furthermore explored various methodologies of Deep Neural Networks to train the neural network. The code repository and detailed report for this project can be found here .

CANCER BIOPSY DIAGNOSIS USING DEEP CNNS | SUPERVISED BY DR. ANIRUDDHA ROY
Aug 2018-Oct 2018

- Built a CNN classifiers to diagnose breast cancer based on HE stained histopathological biopsy slide images.
- Furthermore developed Class Activation Maps (CAMS) for these classifiers to gain insights. This project is still in progress.The code repository and detailed report for this project can be found here .

FAKE NEWS DETECTION | Course Project
Oct 2018-Nov 2018

- Features such as tf-idf, punctuation count, readability and PCFG were extracted from the LIAR dataset.
- The performance of various linear classifiers such as Naive Bayes, Logistic Regression and SVM were compared for the task.The code repository and detailed report for this project can be found here .

EDUCATION

BITS PILANI
Bachelor of Pharmacy | Rajasthan, India
Expected May 2020

AECS MM PUBLIC SCHOOL
CBSE 2016 (Senior Secondary Examination) | Karnataka, India
Percentage: 96.83 (Physics,Chemistry,Maths,CS)

SKILLS & COURSEWORK

BITS PILANI
Information Retrieval
Image Processing
Machine Learning
Bioinformatics
Object Oriented Programming

MOOCS
Machine learning by Andrew NG
Deep Learning Specialization By Andrew NG
SKILLS
Python, C++, Java, R, Matlab
Tensorflow, Keras, Pytorch
Photoshop, MS Office, Linux