NIKITHA RAO

https://raonikitha.github.io/

EDUCATION

B. Tech | PES University, India

Major – Computer Science
Specialization – Data Science

GPA – 9.48/10.0

SKILLS

PROGRAMMING LANGUAGES
C | C++| C# | Java | Python

DATA ANALYTICS
Python | R

MACHINE LEARNING
Python | Scikit Learn

DEEP LEARNING
Python | Tensorflow | Keras

COMPUTER VISION
OpenCV

IMAGE PROCESSING
OpenCV | Scikit Image

NATURAL LANGUAGE PROCESSING
Python | NLTK

WEB DEVELOPMENT
HTML | JavaScript |PHP| AngularJS

PUBLICATIONS

Product Insights: Analyzing Product Intents in Web Search [arXiv]
Nikitha Rao, Chetan Bansal, Subhabrata Mukherjee, Chandra Maddila
Short paper accepted at 29th ACM International Conference on Information and Knowledge Management (CIKM) - 2020

Studying Ransomware Attacks Using Web Search Logs [arXiv]
Chetan Bansal*, Pantazis Deligiannis*, Chandra Maddila*, **Nikitha Rao***
Short paper accepted at 43rd International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR) - 2020
* Authors contributed equally to this work

Analysis of Joints for Tracking Fitness and Monitoring Progress in Physiotherapy [paper]
Nikitha Rao, Piyush M Surana, Rahul Ragesh, Gowri Srinivasa
Accepted at IEEE International Conference on Signal and Image Processing Applications (ICSIPA) - 2019

RESEARCH WORK

INVESTIGATING USERS' WEB SEARCH BAHAVIOR FOR SOFTWARE ENGINEERING AND MAINTENANCE TASKS
We analyze the query logs from Bing to understand how web search is used in software engineering and maintenance tasks. [arXiv]

NEURAL KNOWLEDGE EXTRACTION FROM CLOUD SERVICE INCIDENTS
We work on the fundamental problem of structured knowledge extraction from cloud service incidents.

PARTIAL AUC MAXIMIZER
Designed an algorithm to learn rankings under extreme class imbalance by maximizing the partial area under ROC curve.

ANALYSIS OF RETINOPATHY OF PREMATURITY (Aug '18 - Present)
Features extracted from retinal images of premature infants are used to build a model to identify the stage of the disease. This is in collaboration with Rx Digi Health Platform, a start-up based in Bangalore, India.

PLAYIT: A PLUGGABLE WEB-BASED DRAWING TOOL FOR TECHNICAL DIAGRAMS (Aug '16 - May '19)
Developing a generic web based drawing tool that supports construction, analysis and evaluation of technical diagrams by providing flexibility to developers to plug-in various domains of interest.

ANALYSIS OF THE MODE COLLAPSE PROBLEM (Aug '18 – Dec '18)
An intensive study of the mode collapse problem in GANS and its various solutions was performed. A comparative study along with a thorough literature review on PacGAN and Unrolled GAN was also carried out.

ADVERSARIAL ATTACKS TO FOOL DEEP NETWORKS (Aug '18 - Dec '18)
A study of various adversarial attacks and defenses for deep networks using ImageNet to analyze performance of these attacks on standard models.

INTENT-BASED DUPLICATE QUESTION REMOVAL (Jan '18 - May '18)
Identify whether two questions have the same intent or not. GloVe encoding and a network consisting of fully connected ReLU layers followed by sigmoid classifier were employed on the Quora dataset.

INTERNSHIPS

- Interning at Microsoft Research Lab - India under the guidance of Dr. Sreangsu Acharyya in the domain of data science. We are developing an algorithm to learn rankings under extreme class imbalance. (Jan'19 - July'19)
- Interned at ECE Department, Carnegie Mellon University, Pittsburgh, under Professor Shawn Blanton. My problem statement required me to analyze various patterns in the input-output sequences of various obfuscated circuits based on which a metric was defined to quantify the level of obfuscation in a circuit using machine learning techniques. (June '18 – July '18)
- Was among the youngest students selected for the 5th Summer School Program conducted by the Computer Science and Automation (CSA) Department at the Indian Institute of Science, India. (July '17)
- Completed the summer internship program in the Microsoft Innovation Lab under the domain of virtual reality and machine learning (June '17 - July '17)
- Core member in organizing a course on analysis and thinking - 2017 that was a week-long program in which I delivered a workshop on logical thinking. (July '17)

PROJECTS

- Built a Unix File System and a UNIX shell from scratch using C.
- Built a mini C compiler from scratch using PLY (Python-Lex-Yacc).
- Splitting a given lecture video into topic wise sub - videos to facilitate student support for PESU Academy.
- Built an intelligent question-answer forum website.
- Designed a bot that can be controlled by the accelerometer of your phone. A camera (placed on the bot) takes pictures, processes it and tells you what it sees in text format.

MINI PROJECTS

- Implemented the Porter Stemming Algorithm.
- Prediction of the next word based on previous words using N grams.
- Information Extraction on the Harry Potter Series.
- Implemented Suffix Trees Algorithm.
- Implemented B-Trees on Hard disk.
- Implemented RSA encryption and decryption algorithm.
- Dataset based on the popular Pokémon Go game was used to explore various sampling and dimensionality reduction techniques.
- Text analysis to understand the trends in tweets after Prime Minister Narendra Modi announced demonetisation.
- Prediction of Breast Cancer in patients using the Breast Cancer Wisconsin (Diagnostic) dataset.
- Prediction models and visualizations developed based on the popular show Game of Thrones to predict the viewership of the new season aired and to predict the characters who'd survive.
- Handwritten character recognition using clustering techniques.
- Prediction models built using Indian Liver Patient Dataset (ILPD) used to predict if a patient has Liver cancer or not.