SHALIKA KUMBHAM

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RESEARCH INTERESTS

Robotics & AI: Motion Planning, Human Computer Interaction, Machine Learning

EDUCATION

Indian Institute of Technology, Kharagpur	2018 - 2022
B.Tech, Mechanical Engineering	**8.45/10**
VelocIITy Jr.College	2018
Board of Intermediate Education	**97.60%**
Dr. K.K.Rs Gowtham Concept School	2016
SSC Board	**9.7 / 10**

RESEARCH EXPERIENCE

Efficient Indexing of Metadata extracted from educational videos — Bachelor's Thesis Project - 2
Prof. Krothapalli Sreenivasa Rao   *January 2022 - April 2022*
Dept. of Computer Science and Engineering   *Technologies and Tools: Python, OpenCV, EasyOCR*

- Surveyed relevant literature work for improving the existing accuracies for indexing of metadata
- Developed an indexing system using Fuzzywuzzy and Spacy NER model
- Experimented with Tesseract OCR and Easy OCR with combination of four different keyframe detection methods

Efficient Indexing of Metadata extracted from educational videos — Bachelor's Thesis Project - 1
Prof. Krothapalli Sreenivasa Rao   *August 2021 - November 2021*
Dept. of Computer Science and Engineering   *Technologies and Tools: Python, OpenCV, EasyOCR*

- Extracted data using YouTube-dl and FFmpeg from relevant educational video lectures (NPTEL, MIT OCW)
- Applied EasyOCR to locate text in videos on the keyframes that are extracted using OpenCV library ffprobe
- Created an indexing system by extracting relevant meta data and filtering out the rest using defined rules.
- Evaluated the performance of indexing system using levenshtein distance algorithm

Legal Document Clustering — Term Project — Prof. Bivas Mitra   *February 2021 - April 2021*
Dept. of Computer Science and Engineering   *Technologies and Tools: Python, SNAP, NLTK*

- Created a citation network as there were no pre-evaluated legal document clusters and networks previously
- Clustered the legal documents, to serve as gold standard, based on subject or category it falls under
- Used NLTK library for processing subject names to identify unique subjects from document-subject map
- Worked on the implementation of the Louvain community detection algorithm for clustering the citation network

Open IIT Data Analytics   *March 2021*
IIT Kharagpur

- Part of a team that secured an overall 5th position out of 54 teams in Open IIT Data Analytics Competition
- Predicted the popularity of music tracks based on the features provided in the dataset
- Performed Exploratory Data Analysis to evaluate features that had higher importance in popularity prediction
- Implemented CatBoost model, which had scored an accuracy of 70.08% after balancing the dataset using SMOTE

INDUSTRIAL EXPERIENCE

Application Developer   *July 2022 - Present*
Oracle India Pvt. Ltd.   *Hyderabad, India*

- Part of the Human Capital Management team which works in helping clients with their finances
- Engineered features for a worksheet application to help the clients save time and for easy handling
- Reduced the time of dynamic calculations in the worksheet application by 3 milli seconds

Machine Learning Intern   *June 2021 - August 2021*
Felix Health Care - AI Division   *Bengaluru, India*

- Conducted a literature review of Deep Learning models' results to detect forgeries in images
- Acquired knowledge about Convolutions and Recurring Neural Network concepts in Deep Learning
- Implemented CNN on images to extract features to help identify any of the 385 types of manipulations considered
- Implemented LSTM on Z score features that are processed from the extracted features to detect local anomalies

PROJECTS

Library Management System — Personal Project   *October 2020 - November 2020*
Technologies and libraries: *Python, MySQL, Tkinter*

- Designed a library management system using Tkinter and MySQL to keep live track of books in the library
- Implemented features such as addition/deletion and keeping records of issued, returned, and available books
- Integrated an authentication module with the database to authenticate internal users only

TicTacToe Web App — Microsoft Engage 2020 Project   *June 2020 - July 2020*
Technologies and Tools: *JavaScript, HTML, CSS*

- Created a web application as a part of the Microsoft virtual mentorship program - Engage 2020
- Designed the application to have either a computer (with varied difficulty levels) or a user as an opponent
- Implemented Minimax Algorithm to find the optimal move for the computer depending on difficulty level

AWARDS AND ACHIEVEMENTS

- Secured 5th Position in the **Open IIT Data Analytics** Competition in the academic year 2020 - 2021.
- Selected for mentorship program ENGAGE 2020 through **CODESS 2020** conducted by **Microsoft India.**

COURSES (GRADE)

Data Structure and Algorithm (10) — Computer Architecture and Operating Systems (10) — Machine Learning Foundations and Applications (10) — Image Processing (9) — Data Analytics (9) — Complex Networks (9) — Probability and Statistics (9) — Switching Circuits and Logic Design (8)

SKILLS

- **Programming Languages:** C++, C, Python, JavaScript
- **Utilities & Libraries :** Tensorflow, OpenCV, NumPy, Scikit-Learn, SNAP, Youtube-dl, NetworkX, MatPlotLib, EasyOCR, Pandas, NLTK, FFmpeg, SolidWorks, MS Office, Git
- **Operating Systems :** Windows, Ubuntu

EXTRA-CURRICULAR ACTIVITIES

- Participated in Athletics and Dramatics Competitions in the Inter Hall General Championship 2019-2020
- Participated in Rallies & Social Welfare Activities conducted by the NSO a part of NSO Yoga during 2018-2020
- Participated in Dance Choreography Competition in Inter Hall General Championship in the year 2018-2019