

Abhijith Roy

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RESEARCH INTERESTS

Natural Language Processing, Information Retrieval, Ethical AI, Deep Learning

EDUCATION

National Institute of Technology, Tiruchirappalli

Bachelor of Technology in Computer Science Engineering

Sept. 2019 - August 2023

CGPA: 7.45/10.0

KEY COURSEWORK AND CERTIFICATION

Core Courses: Data Structures and Algorithms, Networks, Operating Systems, Programming Languages

Electives: Cloud Computing, Artificial Intelligence, Machine Learning, Natural Language Processing, Deep Learning Techniques

Certifications: AWS Cloud Practitioner Essentials (Coursera), Deep Learning.AI by Andrew NG (Coursera)

INDUSTRY EXPERIENCE

Carelon Global Solutions

Associate Data Scientist

Hyderabad, India

July 2023 - Present

- Developing Text Extraction model with BioBERT and DistillBERT to capture complex data in insurance forms.
- Fine-tuning AWS Textract OCR model to handle variety of insurance forms.
- Refining regular expressions to capture relevant information pertaining to questions posed by OASIS codes.
- Testing NER and rule based models to improve the accuracy of text extraction with exploration of open source OCR models.

Carelon Global Solutions

Cloud Developer Intern

Bengaluru, India

May 2022 - July 2022

- Developed AWS Lambdas and Step Functions to facilitate deployment of cloud work-spaces in AWS.
- Documentation of troubleshooting errors in AWS Step function that disrupted the flow of the pipeline.
- Documentation of the pipeline to extend to other cloud platforms such as Google Cloud, Microsoft Azure.
- Deployed a chat bot for the financial team of CPMS to retrieve critical billing details for auditing purposes.

RESEARCH EXPERIENCE

Manipal Institute of Technology, Bengaluru

Research Assitant, Guide : Dr. Deepak Gerard

May 2023 - Present

- Focused on automating the creation of knowledge bases in Microeconomics using semantic reasoning measures.
- Developed a web image tagging model to enrich the metadata of medical images utilizing knowledge base of five distinct fields within medicine and CNN classifier.
- Explored clustering algorithms for web page retrieval along with document and video recommendation systems using semantic AI.
- Explored synthesis of Knowledge Graphs from metadata using inferential semantics for logical relationship inference and preferential learning to prioritize patterns

National Institute of Technology, Tiruchirappalli

Undergraduate Thesis, Guide : Dr. A. Santhanavijayan

Jan. 2023 - May 2023

- Proposed a framework to create a knowledge graph from unstructured legal text, particularly from High Courts and Supreme Court of India.
- Utilized IndianLegalBERT and Topic Modeling to conjoin classified data points to formalize a knowledge graph, deployed on Neo4j.
- The framework had the highest values of average precision, accuracy, and F-measure with the lowest value of False Discovery Rate compared to baseline models.

PUBLICATION

Roy, Abhijith; Deepak, Gerard, Santhanavijayan A; **Ontology Synthesis and Generation Using AI Orientated Hybrid Learning for Microeconomics**, Hybrid Intelligent Systems'23
Roy, Abhijith; Deepak, Gerard; **A Semantically Driven Model for Web Image Tagging Using Diverse Tag Selection**, NaBIC'23.

PREPRINTS¹

Roy, Abhijith; Deepak, Gerard; **Document Recommendation using Semantic AI-infused MapReduce**
Roy, Abhijith; Deepak, Gerard; **Video Recommendation Encompassing Semantics Driven Optimisation**
Roy, Abhijith; Deepak, Gerard; **Knowledge Graph Synthesis from Metadata using Inferential Semantics and Preferential Learning**
Roy, Abhijith; Deepak, Gerard; **Web Page Retrieval using Cluster Driven Ontology Consolidation**

TECHNICAL PROJECTS

- IEEE-CIS Credit Card Fraud Detection | *Kaggle* Sept. 2022 - Dec. 2022
- A binary classification real world scenario of detecting fraudulent credit card transactions that required EDA and Data Preprocessing to reduce redundant features of the imbalanced dataset.
 - Implemented several tree-based ensemble algorithms with hyperparameter tuning to achieve the model's highest ROC-AUC score of **0.889**. Currently, working on feature engineering and testing adversarial validation to improve the score.
- Quora Insincere Questions Classification | *Kaggle* Aug 2022 - Sept 2022
- Developed an ML model utilizing Glove, FastText word embeddings with TextCNN to detect insincere questions on Quora.
 - The model was evaluated on F1 score and achieved a **0.70**.
- AR/VR Car Driving Simulator in UnityVR | *Course Project* Jan 2022 - April 2022
- Designed a Car Driving Simulator on UnityVR as part of the AR/VR course during undergraduate.
 - Designed an obstacle course for simulation of driving tests with pre-built assets from the UnityVR Store.

TECHNICAL SKILLS

Languages: Python, C++, SQL (Postgres), JavaScript, HTML/CSS, R
Frameworks: TensorFlow, Scikit-Learn, Kubernetes, Flask, AWS CDK
Developer Tools: Git, Terraform, VS Code, Visual Studio, PyCharm, Jupyter Notebooks, Anaconda

SOCIAL IMPACT AND LEADERSHIP

- **Lead Strategist | GeniusFocus** - Building a social network to bring research professors and scholars closer to undergraduate and graduate students in India with investors. Aimed at improving the accessibility of research opportunities and awareness of the impact of research in a national economy such as India.
- **Member | Rotaract Club, Hyderabad** - Orchestrated the event, 'Unlock your Career Potential', hosted by the club that constituted a masterclass by guest host on refinement of resume and interview skills. Working on a proposal to educate and improve waste disposal methods in urban areas of Hyderabad such as Gachibowli, Kondapur, and Hitech City.
- **Placement Mentorship and Teaching Volunteer | Department of CSE** - Primarily involved in mentoring juniors and sophomores to achieve their career goals with interview prep, coding tests, and networking. Collaborated with NSO to take weekend classes on basic programming concepts and python in Hindi Medium to high school students.
- **Volunteer | National Service Scheme** - Activities for social good causes that included educating the students of a diverse background to write and read English, plantation of saplings across campus grounds. More recently, taught several classes of high school juniors on programming concepts.

¹Currently under peer review process for IEEE and Springer conferences.