

# Abhijith Roy

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## RESEARCH INTERESTS

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Natural Language Processing, Information Retrieval, Serverless Architecture, Deep Learning

## EDUCATION

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**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

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**Core Courses:** Data Structures and Algorithms, Networks, Operating Systems, Cloud Computing

**Data Science:** Artificial Intelligence, Machine Learning, Data Analytics, Probability and Operations Research, Natural Language Processing, Deep Learning Techniques

**Certifications:** AWS Cloud Practitioner Essentials (Coursera), Deep Learning (Coursera)

## INDUSTRY EXPERIENCE

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**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

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**Manipal Institute of Technology, Bengaluru**

*Research Assitant, Guide : Dr. Deepak Gerard*

May 2023 - August 2023

- Focused my research on mitigating ambiguity of concepts in Microeconomics with refining ontology structures by implementing Structural Topic Modeling on classified dataset using LSTM classifier. Created an enriched knowledge base for the Microeconomics domain
- I explored the implementation of a strategic model to tag medical images that have lack of metadata structures using semantic and AI techniques. I utilized CNNs to classify medical image dataset and reasoned the tags of each image using similarity measures

**National Institute of Technology, Tiruchirappalli**

*Undergraduate Thesis, Guide : Dr. A. Santhanavijayan*

Jan. 2023 - May 2023

- To improve the accessibility of court documents and case decisions, developed a framework to extract information to label the extracted text using Named Entity Recognizer and IndianLegalBERT to classify extracted data.
- Employed Semantic Similarity measures and Topic Modeling with Legal Indicators to combine the labelled data and categorized BERT data to curate a graph database on Neo4j i.e., Knowledge Graph.
- Proposed framework had the highest values of average precision, accuracy, and F-measure with the lowest value of False Discovery Rate.

## PUBLICATION

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Abhijith Roy and Gerard Deepak, **Ontology Synthesis and Generation Using AI Orientated Hybrid Learning for Microeconomics**, Hybrid Intelligent Systems'23

Abhijith Roy and Gerard Deepak, **Semantically Driven Model for Web Image Tagging using Diverse Tag Selection for Medical Images**, NaBIC'23.

## TECHNICAL PROJECTS

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- 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 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

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**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

## SCHOLASTIC ACHIEVEMENTS

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- 2019** | Achieved 98.4 percentile in JEE-Mains Exam  
**2019** | Achieved full scores (800) on SAT Subjects (Math, Physics, and Chemistry)  
**2019** | Island Topper in AISCCE Physics Exam

## SOCIAL IMPACT AND LEADERSHIP

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- **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.
- **Job and Internship Placement Mentor | Department of CSE** - Primarily involved in mentoring juniors and sophomores to achieve their career goals with interview prep, coding tests, and networking.
- **Student Representative | Department Committee** - Responsible for speaking on behalf of students in the department to voice their concerns to the department heads as well as reviewing existing course plan and objectives to have a relevant outcome.
- **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.
- **Head Of Media Relations | NM - Model United Nations** - Responsible for marketing and funding of my school's Model United Nations utilizing print and social media. Involved in the highest participation of attendees in an MUN hosted by a school in Bahrain.
- **Head Of Environment Council | New Millenium School** - Lead the Breast Cancer Awareness in collaboration with ThinkPink during October in school Premises. Held the Zallaq, Marina, and Hidd Beach Cleanups as part of Bahrain Beach Clean-up Initiative.