

# Tanmay Vakare

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Work Authorization: F1

Software Engineer - Machine Learning  
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## EDUCATION

### The University of Texas at Dallas, Richardson, Texas

August 2021 - December 2023

*Master of Science in Computer Science (Thesis), GPA 3.5*

- Relevant Coursework: Algorithms, NLP, ML, Probabilistic Graphical Models, Statistics

### Gujarat Technological University, India

August 2014 - May 2018

*Bachelor of Engineering in Information Technology, GPA 8.5/10*

- Relevant Coursework: Algorithms and Data Structures, Big Data, Data Mining, Business Intelligence

## SKILLS

<b>Languages</b>	Python, C++, C, Java, CUDA
<b>Technologies</b>	PyTorch, TensorFlow, NLTK, Spacy, PyTorch Geometric, DGL
<b>DBs &amp; Infrastructures</b>	MongoDB, Firebase, Azure, AWS, GCP, Docker, Hadoop, Spark, Kafka

## TECHNICAL EXPERIENCE

### Software Development Engineer Intern

August 2022-December 2022

*Amazon, Alexa Devices*

*Sunnyvale, California*

- Improved user experience by delivering personalised media content to the users interacting with Alexa speech services.
- Designed and engineered features to support user recognition in voice activated media play control interactions.
- Worked on Java web services with 600K+ daily requests and 100+ APIs.

### Data Scientist/ Applied ML Research Engineer

August 2019-July 2021

*Blackstraw.ai*

*Chennai, India*

- Built an abstractive summarizer for news articles by adopting a multi-stage fine tuning approach for PreSumm, a BERT based text summarization model.
- Redesigned Yolo-V3 based real-time video analytics platform using NVIDIA Deepstream, Triton Server and TensorRT, to increase it's throughput of closed-circuit cameras from 10 to 40, and performance from 15FPS to 20FPS for each camera.
- Optimized GraphNN to identify cliques in tabular information extraction workflow, improving its precision by 5%. Also, refined the algorithm to reduce it's training time by 20%.
- Designed BERT medical staffing NER for information retrieval in high data volume environment, improving the efficiency of the workflow by 10%.

### Co-Founder, Technology Lead

July 2018-July 2019

*Rehabo Technologies*

*Vadodara, India*

- Devised an algorithm to detect and evaluate physical therapy exercises using V-NECT deep learning model for pose estimation.
- Formulated scoring algorithm to evaluate progress of the user and used Firebase to store patient's data.
- Resulted Home-Based Rehabilitation Device potentially reduced rehabilitation cost by 30%.

## PROJECTS

### Predicting morals from fables

*Thesis Project, The University of Texas at Dallas*

- Understanding narrative texts and then predicting the morals from situated reasoning, norms, intents, actions and their consequences. Design an automated process for Story Intention Graph(SIG) generation from narratives, using prompting on LLMs for intermediate outputs. Implemented GraphCNN to generate encoded representation of the SIGs for autoregressive transformer decoding.

### Prompt based learning to identify political conflict and violence

*Big Data Course Project, The University of Texas at Dallas*

- Implemented tuning-free prompting and fixed-prompt LM-tuning approaches on PLM to find out whether the news articles are politically conflicting and violent or not. Fine-tuned BERT, RoBERTa and GPT-2 on articles with engineered prompts for cloze and prefix prompting tasks.[Source Code](#)

### ReLIE: Representation Learning for Information Extraction

*Independent*

- A transformer based entity recognition algorithm from form-like documents. Trained a base transformer model to recognize predefined entities in document images and then extract the corresponding values.[Source Code](#)

## PUBLICATIONS

- Tanmay Vakare, Kshitij Verma, Vedant Jain "Sentence Semantic Similarity Using Dependency Parsing", Proceedings of 10th International Conference of Computing, Communication and Networking Technologies (2019): DOI: [10.1109/ICCCNT45670.2019.8944671](https://doi.org/10.1109/ICCCNT45670.2019.8944671)