

Thanmay Jayakumar

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EDUCATION

VISVESVARAYA NATIONAL INSTITUTE OF TECHNOLOGY Nagpur, India | 2019 - 2023
(B.Tech) Electronics & Communication Engineering

GLOBAL INDIAN INTERNATIONAL SCHOOL
Singapore | 2019

COURSEWORK

- Generative AI with Large Language Models
- NVIDIA's Building Transformer-Based Natural Language Processing (NLP) Applications
- IIIT-Hyderabad's Summer School on NLP [\[Cert.\]](#)
- Stanford CS224n: NLP with DL [\[Course\]](#)
- Neural Networks and Deep Learning [\[Course\]](#)
- CS7015: Deep Learning [\[Course\]](#)
- Improving Deep Neural Networks [\[Course\]](#)
- Convolutional Neural Networks [\[Course\]](#)
- Sequence Models [\[Course\]](#)
- Introduction to Linguistics [\[Course\]](#)
- Data Structures and Algorithms
- Linear Algebra • Probability Theory

SKILLS

PROGRAMMING LANGUAGES

• Python • C • C++ • MATLAB • Perl (basic)

LIBRARIES

• PyTorch • NumPy • SciPy • Pandas • Keras

SOFTWARE/TOOLS

• Git • Bash • MS Office • Adobe Photoshop
• LaTeX • HuggingFace • OS: Windows, Linux

LANGUAGES

Fluent	English, Tamil, Hindi, Telugu
Intermediate	German, Malayalam, Kannada
Elementary	Chinese, Malay, Sanskrit, Arabic

EXTRACURRICULARS

- **Workshop Coordinator:** Organized and volunteered various workshops conducted under IEEE VNIT Student Chapter Nagpur.
- **IvLabs Member:** Core Member of the AI and Robotics Lab of VNIT, Nagpur.
- **Graphic Designer:** Member of the Magazine & Literary Club, VNIT Nagpur.
- **Piano & Music Theory:** Grade 5 - Associated Board of the Royal Schools of Music (ABRSM).

OPEN-SOURCE WORK

- Research Paper Notes [\[HackMD\]](#)
- Research Paper Implementations [\[GitHub\]](#)

EXPERIENCE

RESEARCH INTERN

AI4Bharat, IIT Madras, India (Remote) | June 2023 - Present
• Research on developing LLMs for Indic languages.

RESEARCH INTERN

IIT Kanpur, India (Remote) | May - Aug 2022

- Aimed at solving the task of **Spoken Term Detection** (STD) to retrieve queried speech files in an audio database.
- Implemented three different approaches to STD for query localization, classification and location suggestion in a database.
- Analyzed an optimal combination of the above, in order to work towards building a language-agnostic system.

PUBLICATIONS

1. [Pre-print upcoming] **Large Language Models are legal but they are not: Underscoring the need for a powerful Legal LLM:**
Thanmay Jayakumar, Fauzan Farooqui, Luqman Farooqui (NLLP, EMNLP 2023)
2. [Paper] **Attending to Transforms: A Survey on Transformer based Image Captioning:** *Kshitij Ambilduke, Thanmay Jayakumar, Luqman Farooqui, Himanshu Padole, Anamika Singh. (PCEMS 2023)*
3. [Paper under review] Enhanced word-embedding models by fusing linguistic structure for Open Information Extraction. (COLING)

SELECTED PROJECTS

MULTI-CHOICE QUESTION ANSWERING

IvLabs, VNIT, India | Aug 2023

- Deployed PyTorch's **DistributedDataParallel** and **FullyShardedDataParallel** with the **Hugging Face** Transformers framework for **RoBERTa** on a two-GPU parallelism setup.
- Achieved an accuracy of 85.6% using Sequence (Binary) Classification and 83.6% using Multiclass Classification.

IMAGE CAPTIONING

IvLabs, VNIT, India | Jan-Mar 2023

- Surveyed image captioning methods for our thesis titled "Deep Learning techniques for Automatic Image Captioning"
- Investigated captioning models with a **ResNet** image encoder and various decoders in PyTorch using the Flickr caption dataset.
- Examined the model results on **BLEU**, **METEOR** and **ROUGE**.

MACHINE TRANSLATION

IvLabs, VNIT, India | Feb-Jun 2022

- Implemented Encoder-Decoder architectures from scratch in PyTorch using the Multi30k Dataset for German-English.
 - Attention Is All You Need [\[arXiv\]](#)
 - NMT by Jointly Learning to Align and Translate [\[arXiv\]](#)
 - Sequence to Sequence Learning with Neural Networks [\[arXiv\]](#)
- **Low-resource NMT (Literature Review):** [\[Presentation\]](#) [\[Notes\]](#)
- **Statistical Machine Translation:** [\[Presentation\]](#)
"Investigating Effects of Tuning on Different Evaluation Metrics"