

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

SKILLS

PROGRAMMING LANGUAGES

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

LIBRARIES

• PyTorch • Tensorflow • NumPy • SciPy • Pandas

SOFTWARE/TOOLS

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

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

EXPERIENCE

AI4BHARAT, IIT MADRAS

Sep 2023 - Present

AI Resident **Advisors:** [Dr. M Khapra](#), [Dr. A Kunchukuttan](#), [Dr. R Dabre](#)

- Research on developing multilingual LLMs for Indic languages.
- Experience with instruction-tuning, RLHF, Adapters, PEFT.

IIT KANPUR

May - Aug 2022

Research Intern (SURGE 2022 Intern) **Advisors:** [Dr. Vipul Arora](#)

- 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. [\[To Appear\]](#) **Thanmay Jayakumar**, Fauzan Farooqui, Luqman Farooqui, "Large Language Models are legal but they are not: Making the case for a powerful LegalLLM" (NLLP, EMNLP 2023)
2. [\[Paper\]](#) Kshitij Ambilduke, **Thanmay Jayakumar**, Luqman Farooqui, Himanshu Padole, Anamika Singh, "Attending to Transforms: A Survey on Transformer based Image Captioning" (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 [\[GitHub\]](#)

IvLabs, VNIT, India | Aug 2023

- Deployed PyTorch's **DistributedDataParallel** and **FullyShardedDataParallel** with the **HuggingFace** 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 [\[GitHub\]](#)

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 [\[GitHub\]](#)

IvLabs, VNIT, India | Feb-Jun 2022

- Studied papers presenting novel architectures for NMT.
- Implemented Encoder-Decoder architectures from scratch in PyTorch using the Multi30k Dataset for German-English.
- **Low-resource Machine Translation:** [\[Presentation\]](#) [\[Notes\]](#)
Reviewed the literature for NMT in low-resource scenarios
- **Statistical Machine Translation:** [\[Presentation\]](#)
Investigated the effects of tuning on different evaluation metrics. Presented at the IIIT Hyderabad Advanced NLP Summer School.