

Aditya Srinivas Menon

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EDUCATION

Indian Institute of Information Technology Kottayam

Kottayam, India

Bachelor of Technology (with Honours) in Computer Science (B.Tech Hons. CSE)

May 2024

- CGPA: **9.01** out of 10

SKILLS SUMMARY

Languages

Python, C, JavaScript HTML/CSS, MATLAB/Octave

Frameworks

PyTorch, Flutter, TensorFlow, Keras, NLTK, Django, Flask

Tools

GIT, Linux, Bash, GCP, Docker, Figma

PUBLICATIONS AND PREPRINTS

1. Cipolina-Kun, L., Caenazzo, S., Mazzei, G., **Menon, A. S.** "Image Inpainting Applied to Art: Completing Escher's Print Gallery." International Conference on Machine Learning **ICML: LatinX in AI (LXAI)** Research Workshop, 2021.
2. Dasare, A., Chowdhury, A. R., **Menon, A. S.**, et al. "Bridging the Gap: Towards Linguistic Resource Development for the Low-Resource Lambani Language." International Conference on Speech and Computer **SPECOM**, Springer Nature Switzerland, 2023
3. **Menon, A. S.**, Konjengbam, A. "X-ABI: Toward Parameter-Efficient Multilingual Adapter-Based Inference for Cross-Lingual Transfer." International Conference on Data Management, Analytics and Innovation **ICDMAI**, Springer Nature Singapore, 2023
4. **Menon, A. S.**, Nair, G. "VICRA: Variance-Invariance-Covariance Regularization for Attack Prediction." 2023 18th Conference on Computer Science and Intelligence Systems **FedCSIS**, IEEE, 2023.
5. **Menon, A. S.**, Gohil, R., Tripathi, K., Wasnik, P. "LASPA: Language Agnostic Speaker Disentanglement with Prefix-Tuned Cross-Attention"

RESEARCH EXPERIENCE AND INTERNSHIPS

Sentiment Analysis Interpretability (SAINT)

May 2023 - Present

Guide: Prof. Dr. Chris Biemann, Seid Muhie Yimam

University of Hamburg

- Interpretability of sentiment analysis models using token-level contributions in low-resource languages
- Devise a **data pipeline** for extracting keywords from a corpus of **COVID-19 vaccination** tweets
- Use the keywords to scrape **10,000** tweets related to COVID-19 vaccination in **German** and **Kannada**
- Built linguistic resources for **German, Kannada, Amharic, Hausa, and Igbo** languages

Unsupervised Person Search

May 2023 - Present

Guide: Dr. Deepak Mishra

IIST

- Conducted comparative analysis of transformer-based vision models for **person search**.
- Reproduced results of supervised person search models achieving benchmark parity on **PRW** dataset.
- Developed a self-supervised clustering model (**DID**) with an accuracy of **92%** on the PRW dataset
- Devise a novel pipeline for Unsupervised Person Search and evaluate it on PRW dataset using DID

Development of Linguistic Resources for Lambani

Feb 2023 - Present

Guide: Dr. Konjengbam Anand

IIT Dharwad

- Developed computational tools, corpus collection and linguistic technologies for **Lambani**
- Create **lexical corpora** for Lambani by collecting and translating text from various sources
- Designed a linguistic **tagset** and annotated **10,000+** Lambani sentences, enabling research.
- Develop a **BERT+RNN** based POS tagger achieving an accuracy of **94.02%** on manual evaluation

Cross-lingual Phrase Retrieval

Jan 2023 - Present

Guide: Dr. Manu Madhavan

IIIT Kottayam

- Development of cross-lingual **Phrase Retrieval** techniques for low-resource Indian languages
- Collecting parallel data in 8 different indian languages for cross-lingual phrase retrieval
- Apply phrase retrieval in Neural Machine Translation for idioms across Indian Languages

INDUSTRY EXPERIENCE

Sony Research India

Bangalore

Deep Learning Intern

May 2024 - Present

- Transformer-based joint learning for language-agnostic speaker representations improved by **2.63%**.
- Developed an efficient method for training and inference of **LLMs** for ASR improving accuracy by **14%**.
- Trained and deployed three production-grade ASR and diarization for **low-resource** Indian languages.
- Developed a pipeline for **Netflix** standard subtitle generation using output from ASR models.

Begin AI

Intern Machine Learning Engineer

Dec 2021 - June 2022

- Conducted R&D on **voice cloning** using GAN-based architectures, enhancing voice synthesis quality.
- Implemented federated learning models for decentralized data processing across **44,000** speech samples.
- Developed ML-based recommendation systems, fake profile detection and voice cloning algorithms.

Bosch

Computer Vision Research Intern

June 2022 - September 2022

- Research on anomaly detection, achieving **94%** accuracy on a proprietary dataset of **2M+** images.
- Applied self-supervised learning methods to generate embeddings, improving segmentation accuracy.

TALKS AND POSTER PRESENTATIONS

- **The Fourth Indian Symposium on Machine Learning (IndoML):** *Cross-lingual Phrase Retrieval for Indian Languages*
- **National Youth Conference on Indian Knowledge Systems:** *Development of Language Technologies for low-resource Indian Tribal Languages*
- **Cyber Security Roadshow, Indian Institute of Science (IISc):** Attack Prediction Using VICREG
- **Machine Learning Research School 2023:** *Natural Language Processing for Low-Resource Languages*
- **Argentine Symposium of Artificial Intelligence:** *Image Inpainting Applied to Art*

PROJECTS

Dancefake | *Pytorch, Flutter, Firebase*

August 2021

- App that lets users choose templates, click an image and create **deepfakes** of dance videos
- Pitched the product as a social media app to **Y Combinator** batch of Winter 2022, leading a team of 4
- Designed and launched the **social media** app where users are **3 clicks** away from recreating dance videos

Fingerprint liveliness detection | *Pytorch, Flask, Python, Firebase, Javascript*

August 2022

- Trained a deep learning model on **LivDet** 2015 dataset with **1000** images to detect fake fingerprints
- Achieved an accuracy of **92%** on test set using patch CNN's and enabled **auth** for fingerprints
- Proposed **the idea** with heart beat detection and liveliness detection to a panel of judges at **SIH Finals**

ACHIEVEMENTS

- Winner of **Manthan 2021**, India's first hackathon on national security by **BPR&D & AICTE**
- Finalist of **Smart India Hackathon SIH:2022**, India's largest hackathon for **2** problem statements
- **#9** Worldwide among **65,000+** Hackers, Major League Hacking LHD: Share 2021
- Winner (out of **600+** teams), in RU Hacks, Hack Tech and MLH: Uncommon Hacks
- Grade 2 Keyboard Certification from the London School of Music

VOLUNTEERING EXPERIENCE

- **Mentor** at Technical Club **Beta Labs** of IIIT Kottayam, August 2022
- Organiser of Apoorv 2023, the techno-cultural fest of IIIT Kottayam
- **Technical Lead** at Google Developers Student Club GDSC, IIIT Kottayam, August 2021
- Held elected leadership roles (**House Captain & School Vice Captain**) representing student voices
- Mentor at **Non-Profits** (Command Tech) and **hackathons** (Hydrangea Hacks, LA Hacks, Ignition Hacks)
- Advocated for climate change awareness through outdoor campaigns featuring posters, plays, and mimes.