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*
- Make Sentiment Analysis models more interpretable by identifying tokens that contribute to a prediction
- Devise a **data pipeline** for extracting keywords from a corpus of **COVID-19 vaccination** tweets
- Low Resource Language Development: Use the scraped corpus to develop linguistic resources for low resource languages like **German, Kannada, Amharic, Hausa and Igbo** using data-efficient methods

Unsupervised Person Search May 2023 - Present
Guide: Dr. Deepak Mishra *IIST*
- Analyse the current state of vision models in deep learning that use the **Transformer** Architecture
- Implement state-of-the-art models in **Supervised Person Search** and reproduce the results
- Implemented a self-supervised person clustering model (DID) with **92%** accuracy 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*
- Development of language technologies for **low-resource** tribal language spoken in Karnataka: **Lambani**
- Create **lexical corpora** for Lambani by collecting and translating text   from various sources
- **Tagset** creation and analysis for Lambani language from the created lexical corpora and annotate data
- 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 retireval in Neural Machine Translation for idioms across Indian Languages

INDUSTRY EXPERIENCE

Sony Research India   Bangalore
Deep Learning Intern   *May 2024 - Present*
- Research on novel techniques for language-agnostic speaker representations through joint learning.
- Developed an efficient method for training and inference of **LLMs** for speech recognition.
- Trained multiple production-level **speech recognition** models for low-resource Indian languages.

Begin AI
Intern Machine Learning Engineer   *Dec 2021 - June 2022*
- Research and development in state of the art **voice cloning** techniques and how to improve them
- Work on **decentralized** ML methods and on-device **federated learning** for **44,000** audio data points
- Make recommendation systems, fake profile detection and voice cloning algorithms for apps

Bosch
Computer Vision Research Intern   *June 2022 - September 2022*
- Work on State of the Art **anomaly detection** models on proprietary **datasets** with over **2 mil** images
- Use **self supervised approaches** to get rich **embeddings** for anomaly detection and segmentation
- Parallelize models on GPU cluster and tune them for better results and time efficiency

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 final product as a social media app to **Y Combinator** batch of Winter 2022
- 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

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
- Mentor at **Command tech**, a non-profit helping and guiding the under-represented sections in STEM
- Mentor at Hydrangea Hacks, LA hacks and Ignition Hacks, 2021