CHRIST
(DEEMED TO BE UNIVERSITY)
BANGALORE · INDIA

Notice for the PhD Viva Voce Examination

Ms Amrutha K (Registration Number: 1942040), PhD scholar at the School of Sciences, CHRIST (Deemed to be University), Bangalore will defend her PhD thesis at the public viva-voce examination on Wednesday, 6 December 2023 at 10.30 am in Room No. 044, Ground Floor, R & D Block, CHRIST (Deemed to be University), Bengaluru - 560029.

Title of the Thesis	:	**A Framework for Continuous Indian Sign Language Recognition Using Computer Vision**
Discipline	:	**Computer Science**
External Examiner (Outside Karnataka)	:	**Dr B Surendiran** Associate Professor Department of Computer Science NIT - Puducherry, Thiruvettakudy, Karaikal – 609609 Puducherry
External Examiner (Within Karnataka)	:	**Dr Andhe Dharini** Professor Department of Computer Science R V College of Engineering Bengaluru, Karnataka
Supervisor	:	**Dr Prabu P** Assistant Professor Department of Computer Science School of Sciences CHRIST (Deemed to be University) Bengaluru, Karnataka

The members of the Research Advisory Committee of the Scholar, the faculty members of the Department and the School, interested experts and research scholars of all the branches of research are cordially invited to attend this open viva-voce examination.

Registrar

Place: Bengaluru

Date: 23 November 2023

ABSTRACT

Sign language serves as a vital means of communication for individuals worldwide who are hearing impaired or hard of hearing. However, the communication barrier between sign language users and non-signers can lead to challenges and limited opportunities. To address this, Automatic Sign Language Translators (A-SLT) have been developed to automatically interpret sign language gestures into text and audio. This research specifically focuses on translating Indian sign language into sentence form.

The study involved testing several deep learning models, including CNN, RNN, and classic LSTM, using the dynamic and moderately-sized dataset 'INCLUDE'. The analysis demonstrates that the proposed translator model outperformed various existing models. Performance analysis metrics, such as translation accuracy, prediction percentage, WER, and the BLEU score, were compared across different models using the same dataset. The results reveal that the proposed model outperformed several other deep-learning classifiers.

Keywords: ISL, SLT, INCLUDE dataset, InceptionV3, LSTM

Publications:

1. **K. Amrutha** & P. Prabu, Effortless and beneficial processing of natural languages using transformers, Journal of Discrete Mathematical Sciences and Cryptography, 25:7, 1987-2005, 2022 DOI: 10.1080/09720529.2022.2133239.
2. **K, Amrutha** and Prabu, P., 2023. Evaluating the pertinence of pose estimation model for sign language translation. International Journal of Computational Intelligence and Applications, 22(01), p.2341009. DOI:10.1142/S1469026823410092.
3. **K, Amrutha**, Prabu P, and Ramesh Chandra Poonia. "LiST: A Lightweight Framework for Continuous Indian Sign Language Translation" Information 14, no. 2: 79,2023. https://doi.org/10.3390/info14020079