

## Prof. Dr. ir. Emanuël A.P. Habets International Audio Laboratories Erlangen

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Erlangen, 14.08.2020

## Letter of recommendation for Shrishti Saha Shetu

To whom it may concern,

As an Associate Professor for Perception-based Spatial Audio Signal Processing at the Friedrich-Alexander University Erlangen-Nürnberg (FAU) and Head of the Spatial Audio Research Group at the Fraunhofer Institute for Integrated Circuits IIS in Germany, it is my great pleasure to provide a letter of recommendation for Mr. Shrishti Saha Shetu.

Mr. Shetu performed his M.Sc. thesis project at Fraunhofer IIS from November 2019 to June 2020 under the direct supervision of Dr. Soumitro Chakrabarty. I was the academic advisor of his M.Sc. thesis.

Mr. Shetu's M.Sc. thesis is entitled "An Empirical Study of Visual Features for DNN-based Audio-Visual Speech Enhancement." The main outcomes of his thesis can be summarized as follows:

- Demonstrated that integration of visual features leads to significant performance gains when interfering speakers are present;
- Proposed new model architectures using raw lip images as visual features;
- Showed that raw images as visual features can provide similar speech enhancement performance compared to embeddings obtained from pre-trained visual feature extraction models.

During his thesis, Mr. Shetu proved that he is quick to learn new tasks. Within a short time, he was very successful in applying the acquired professional knowledge to his work. Mr. Shetu has shown a high degree of dedication at all times. When accomplishing his tasks, he always gave evidence of high intensity and energy. He performed his tasks with the utmost care and exceeding efficiency. We were always very satisfied with the results of his work.

Mr. Shetu performed his tasks in an exemplary manner without exception. We were, therefore, absolutely satisfied with his performance. His behavior towards superiors and colleagues was exemplary.

We thank Mr. Shetu for a fruitful collaboration and wish him all the best and every success for his personal and professional life.

With kind regards,

Prof. Dr. r. Emanuël Habets