Spatial Bias in Vision-Based Voice Activity Detection

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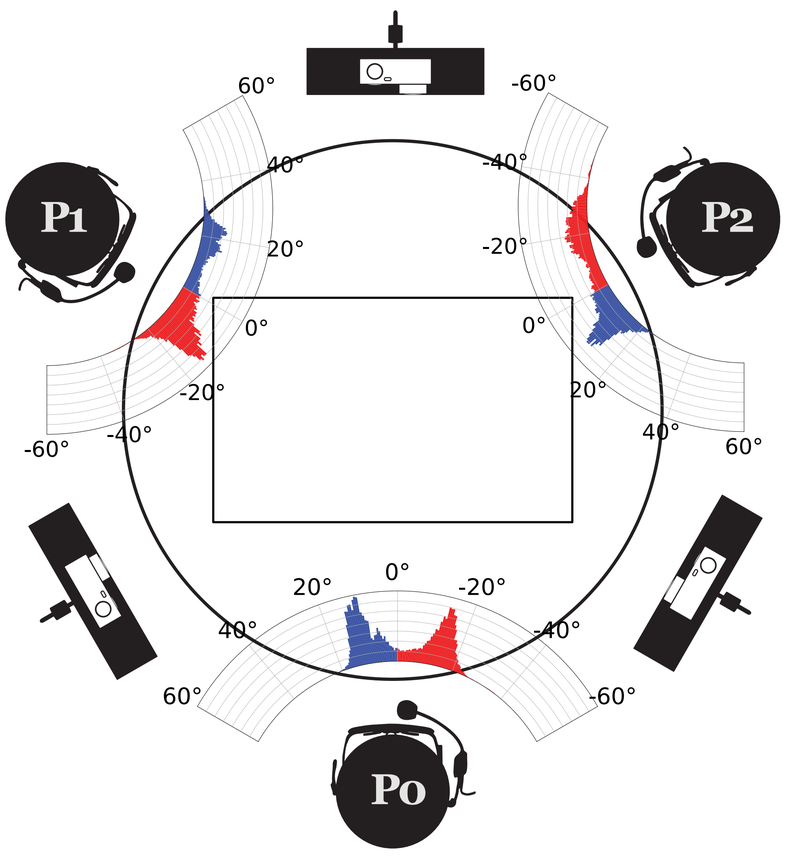
Contributions

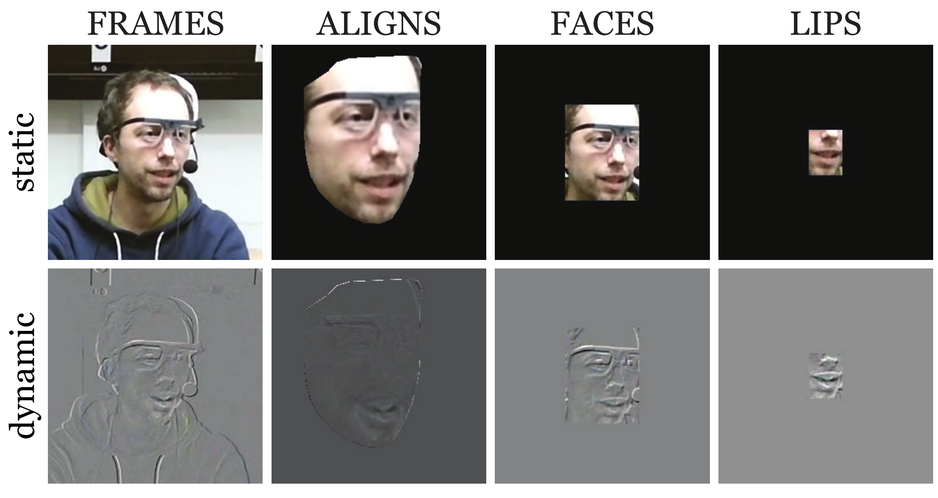
- We demonstrate that spatial bias (head pose information) related to the physical settings of the interaction is encoded in the learned representations of certain types of vision-based voice activity detectors
- We analyse the effect of data augmentation, input masking and dynamical inputs on the generalization capabilities of the models with mismatched train and test data
- We perform in-depth analysis of the features extracted by the models in order to explain the experimental results

Dataset

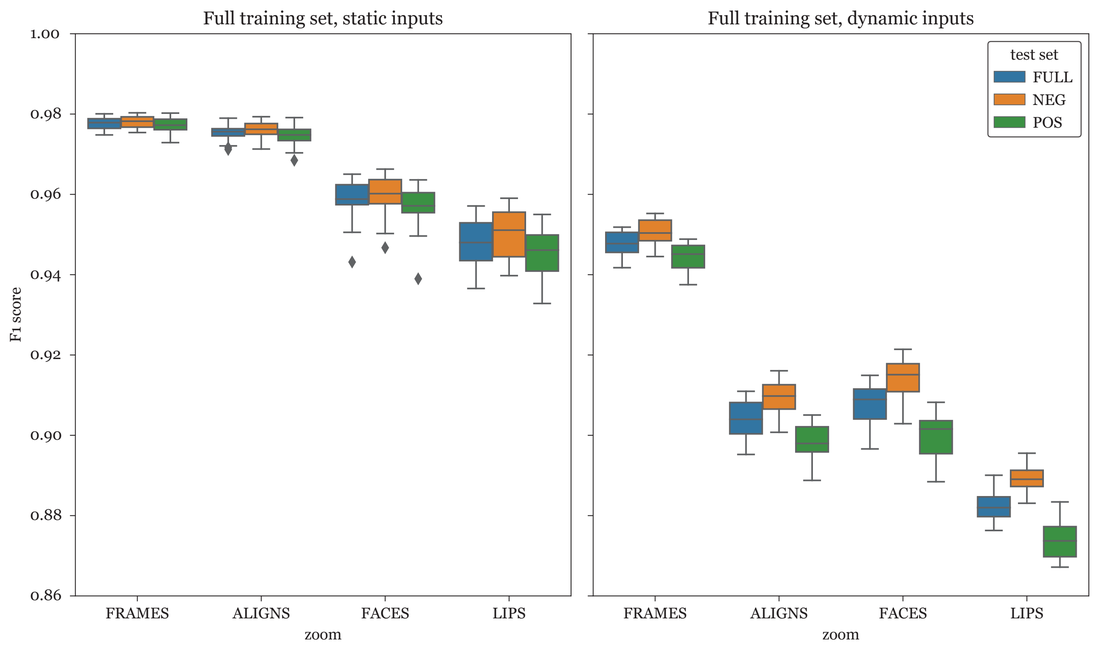


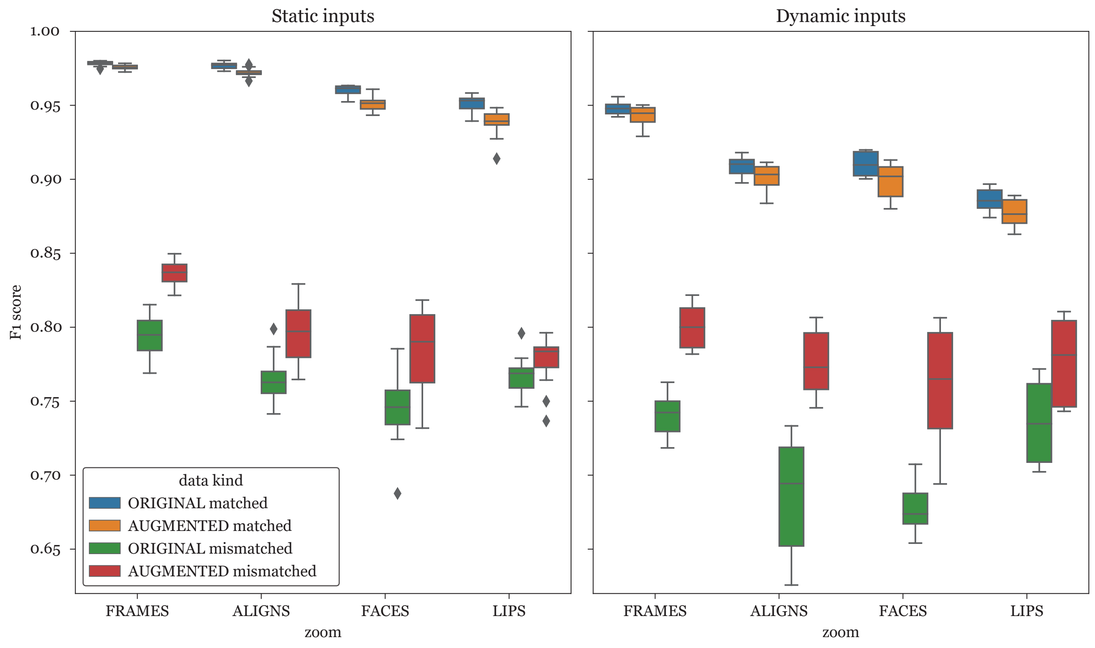
Models and Experiments

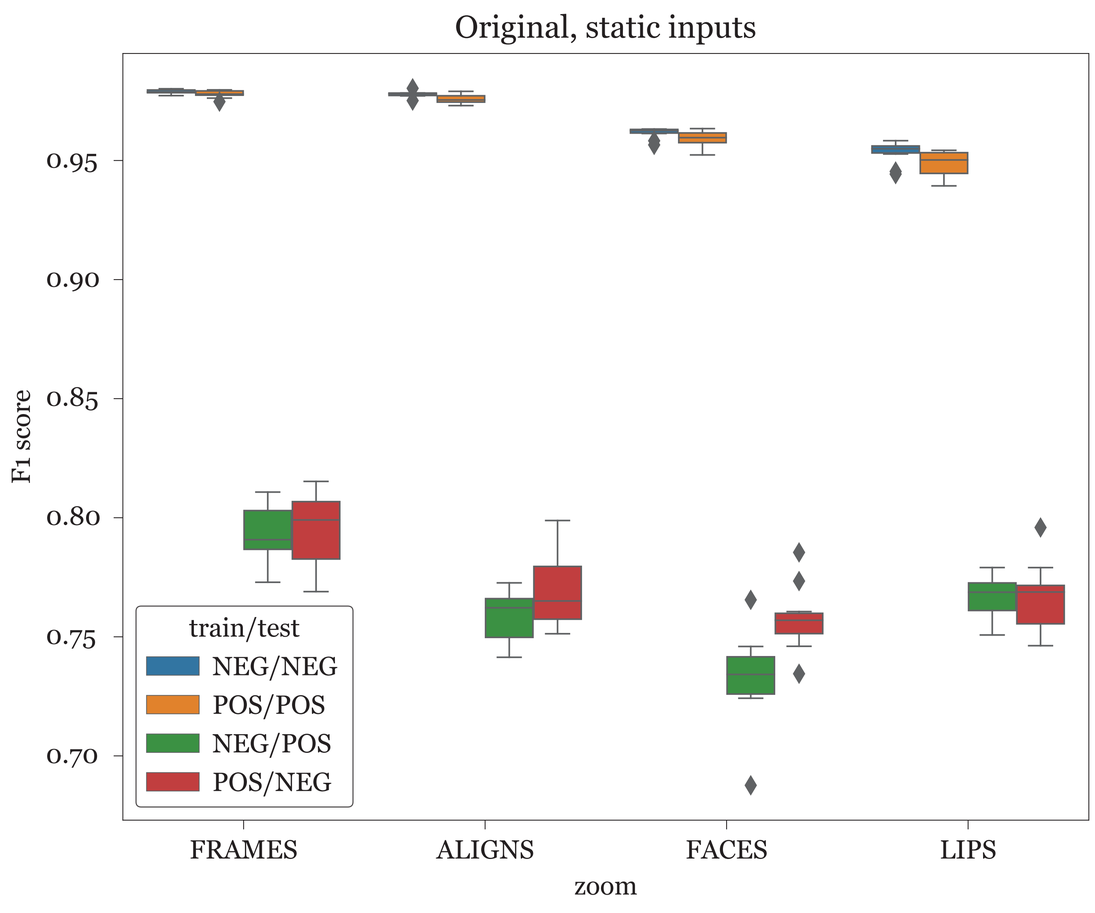
- ResNet-18 + classifier (simultaneously fine-tune and train)
- Masking (zoom) level (figure columns)
- Input type (figure rows)
- Data partitioning (positive and negative angles)
- Data augmentation (horizontal flip)



Results







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