Priyanka Das
Research Scientist

priyanka.das@lfb.rwth-aachen.de

Dictionary design for sparse representation for non-rectangular signal transformation

Background

Transformation is an important part for achieving compression in video coding. Tradition transformation technique includes DCT (Discrete Cosine Transformation) and DST (Discrete Sinusoid Transformation). They all work on rectangular blocks. There is a scope in new codecs to transform non-rectangular signals. The following are non-rectangular modes available in AV1 (a modern codec). The thesis is to investigate ways to construct a dictionary using dictionary learning techniques to achieve efficient transformation for the following non-rectangular signal shapes and available block sizes.
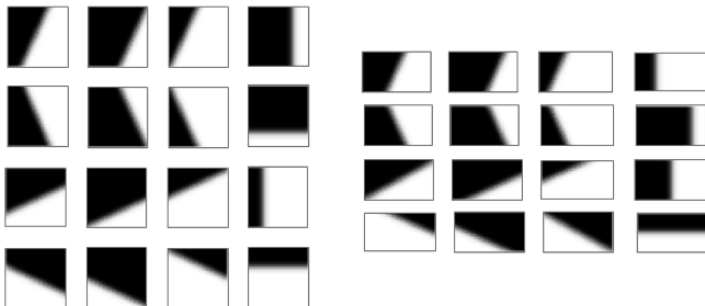
Requirements

- Understanding and interest in signal processing
- Background knowledge on video coding would be very helpful
- Experience in Matlab or python

If you are interested please send me an email.