

# **Time extended structure tensors for multiple directionality estimation**

Fredrik Andersson

Standard structure tensors provide a robust way of directionality estimation of waves (or edges), but only for the case of non-intersecting waves. In this work, a structure tensor extension using the one-way wave equation is proposed as a tool for directionality estimation in the presence of intersecting waves. Detection of two intersecting waves is possible in the twodimensional case by constructing structure tensors of size  $3 \times 3$ . In three dimensions both two and three intersecting waves can be detected using structure tensors of size  $5 \times 5$ . Moreover, a method for directionality filtering using the estimated directions is proposed. This method also relies on a particular usage of the one-way wave equation.