The Vogt-Bailey Index

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The analysis of local connectivity in functional MRI (fMRI) data presents unique challenges and opportunities for advancing our understanding of brain function. This SCISEM talk focuses on recent developments and future directions in local connectivity analysis. Our talk will delve into the evaluation of current methodologies for local connectivity of fMRI data and the challenges for the field.

We will first address the validation of an in-house approach to "data-driven" local connectivity (the Vogt-Bailey Index) using synthetic phantom data as well as with the established gold standard statistical modelling technique for brain activations using the General Linear Model framework. Second, we will outline the key challenges we face in the field. These include issues related to standard preprocessing techniques that introduce artefacts to the downstream analysis as well as to the inherently noise in data-driven techniques.