Sulcal Neuroanatomy and Relative Relationships using Spatial Gradients
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Objective: To characterise sulcal traits and relationships by means of spatial gradients. Our use of spatial gradients allows for the investigation of sulcal associations on structural MRI images. We localise, identify and relate sulci to examine inter-sulcal relationships, providing additional insight into cortical mapping.

Current atlases may struggle to account for inter-individual variability of sulcal characteristics.

We took the significant sulcal relations and constructed dependency paths per lobe (see Fig. 2), whereby any sulcus can be found based on previously found sulci.

We have shown how primary and secondary sulci relate to each other and have quantified our findings as being consistent in a large population, thus providing additional insight into cortical mapping.

Primary sulcal relations were consistent across hemispheres and subjects, mirrored by consistencies across many secondary sulci.

Our results reinforce our hypothesis of localising sulci according to their spatial gradients as a proof-of-concept study.

References