Localizing visual motion area FST in human

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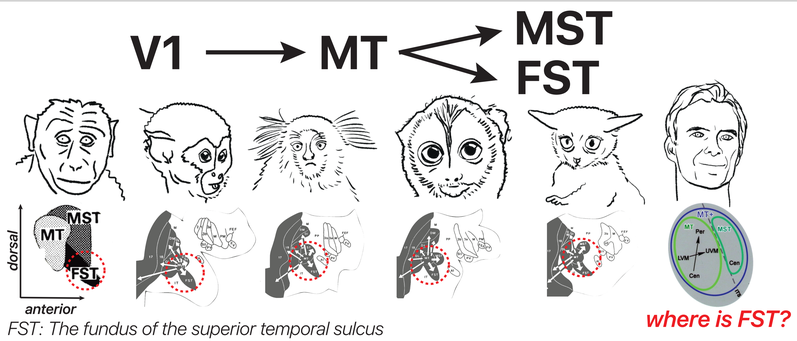
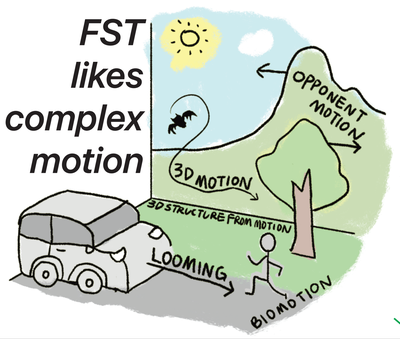
FST: Evident in non-human primates

We want to find the human homolog



FST: The fundus of the superior temporal sulcus

FST is distinct from MT/MST

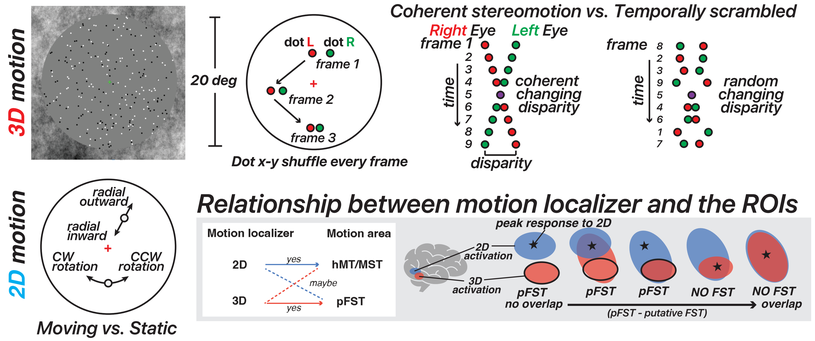


FST responds to -
- *3D motion direction* ✓
- *3D structure from motion*
- *opponent motion* ✓
- *biological motion*

Also retinotopically and structurally distinct from MT/MST:
- *large receptive field size* ✓
- *targets central vision* ✓
- *reduced myelination* ✓

✓ *: metrics we included in the project*

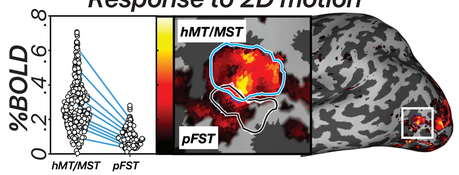
Localizer: contrasting 2D/3D motion



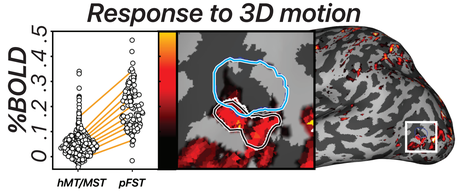
Mapping and validating hMT/MST and putative FST

Drawing ROI boundaries

Response to 2D motion

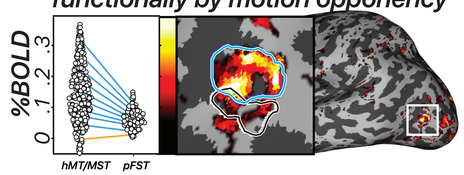


Response to 3D motion

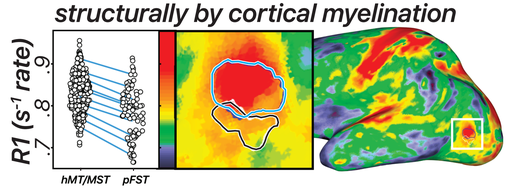


Verifying ROI boundaries -

functionally by motion opponency

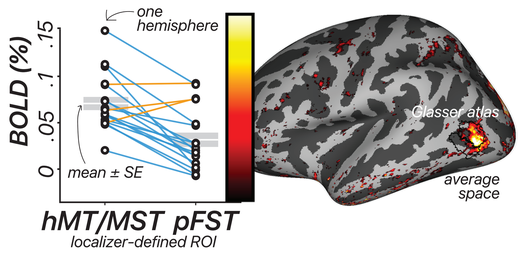


structurally by cortical myelination

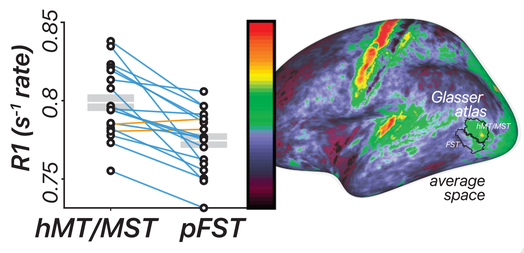


Group results: validating pFST across 18 hemispheres

pFST - Lack of motion opponency



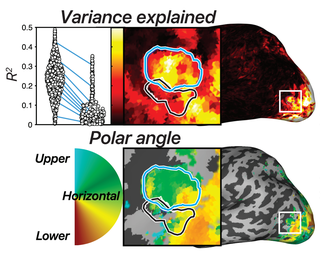
pFST - Reduced cortical myelination



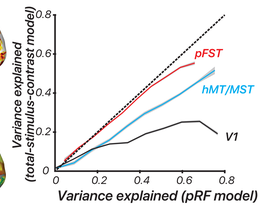
pRF is poorly suited to identifying FST-like areas

(areas with large pRFs)

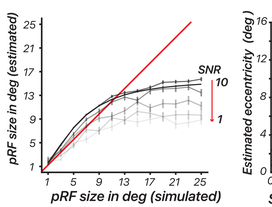
pFST - Low R^2



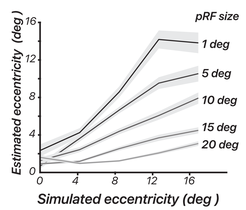
pFST lacks spatial selectivity



Underestimation of pRF size

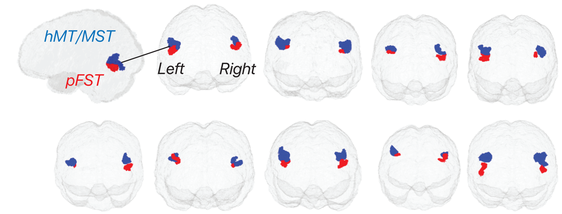


Underestimation of eccentricity

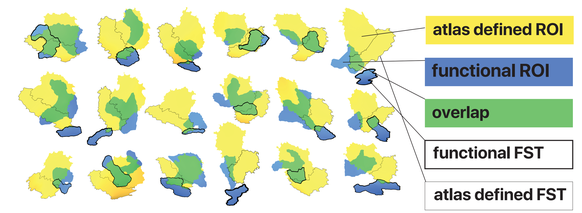


Location of pFST in relation to hMT/MST

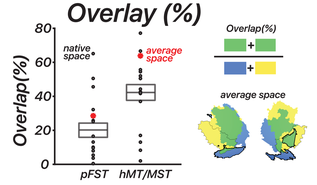
pFST is consistently localized anteroventral to hMT/MST along ITS bilaterally



Functional- and atlas-defined ROIs

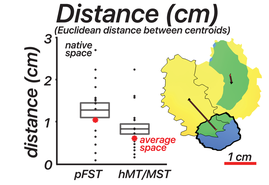


Overlay (%)

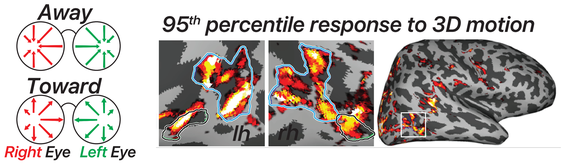


Distance (cm)

(Euclidean distance between centroids)



Generalizability to full 3D Motion



Conclusion: *The 3D motion localizer isolates putative human FST, which closely resembles macaque FST and exhibits distinct differences from the well-established neighboring areas, hMT and MST.*

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