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Cortical contributions to cognitive control of language and beyond: evidence from functional connectivity profiles of the inferior parietal cortex and cognitive control-related resting state networks

Tabassi Mofrad, F.

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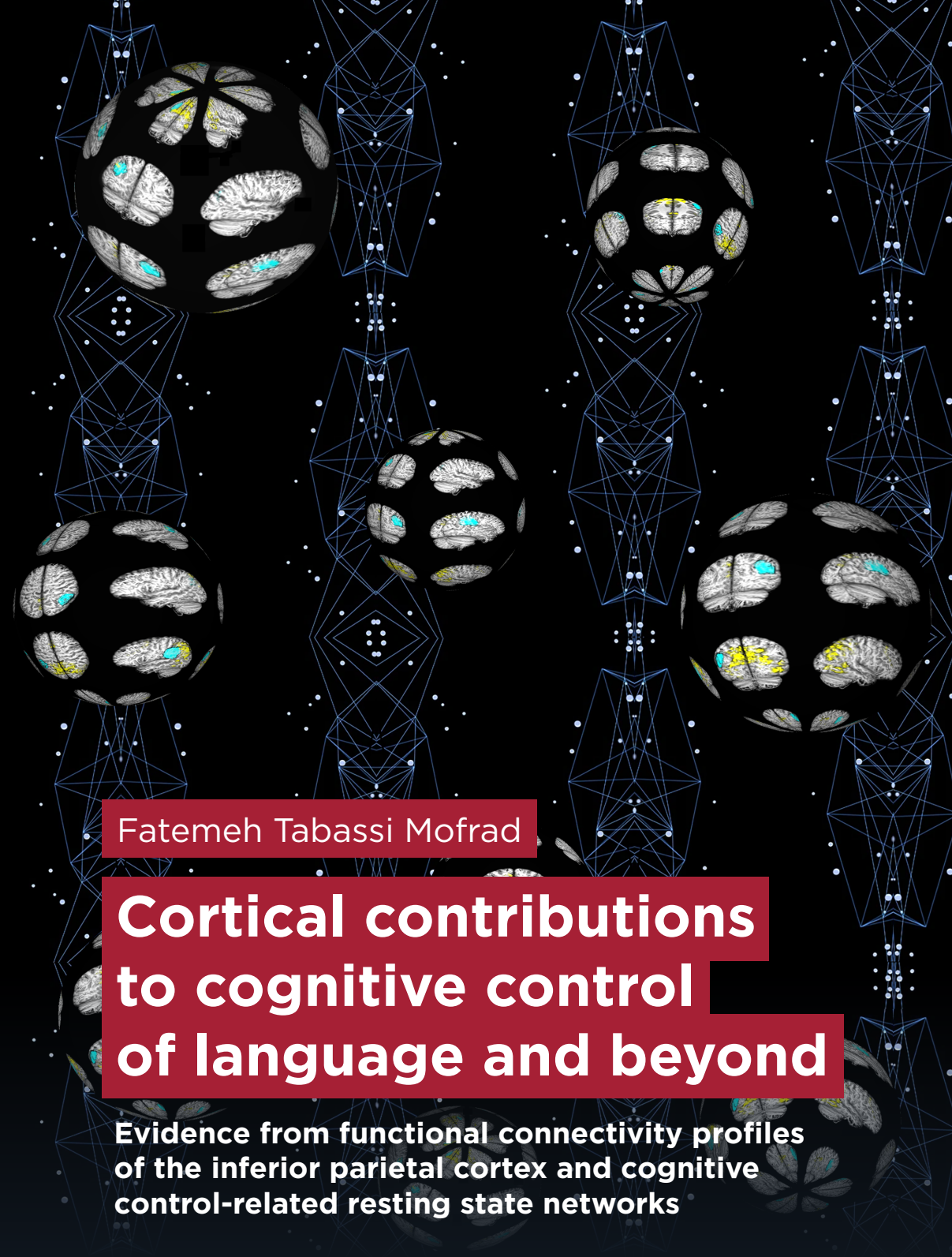


Cortical contributions to cognitive control of language and beyond

Evidence from functional connectivity profiles of the inferior parietal cortex and cognitive control-related resting state networks

The resting state connectivity of the dorsolateral prefrontal cortex with the left primary somatosensory cortex and the functional association of the inferior parietal cortex (IPC) with the right primary somatosensory cortex indicate better and poorer performance in cognitive control of language, respectively. Besides, the task based connectivity profiles of the clusters of the IPC elucidate that it is not the whole part of this brain area that is involved in cognitive control, in the fronto-parietal network, but only the rostral cluster of the IPC. Moreover, the unique functional associations of the middle and the caudal IPC evidence that the traditional categorization of brain areas does not accommodate the functions of these parts of the cortex; the connectivity patterns of the middle and the caudal IPC have highlighted another brain functional category beyond the classic definitions, as modulating cortical areas, the functional connectivity of which are disparate from parts of the cortex involved in task performance and brain areas related to the resting state functionality of the brain.

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Fatemeh Tabassi Mofrad

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