Department of Psychology

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Dear Sir or Madame,

Please find enclosed our submission to the *Journal of Cognitive Neuroscience*, entitled “Taking distributed representations seriously in functional brain imaging”. The manuscript describes an effort to connect the representational assumptions of an influential approach to cognition—connectionism or parallel distributed processing—to functional brain imaging. We consider how statistical analysis of brain imaging data is best approached if these representational assumptions are valid. To this end we compare and contrast the results of widespread and state of the art approaches in their ability to discover distributed representations encoded in a neural network model, where the nature of the true representation is known. The analysis reveals the “blind spots” of common methods, how they arise from implicit underlying assumptions about representation, and how they are remediated by other methods. We then illustrate that these methods yield quite different results when applied to the same brain imaging dataset. All together we believe the work has important implications both for the interpretation of the brain imaging literature to date as well as for the development of new approaches moving forward.

The paper is longer than what is typically published in *JoCN*, and indeed is longer than the published guidelines. We are asking that the journal consider publishing it at the recommendation of one of the associate editors, Prof. Bradley Postle, who has encouraged us to submit the work unabridged. Prof. Postle also suggested that, if he is available, Prof. Jeffery Binder would be an excellent action editor for this submission.

If the length of the manuscript is a firm barrier to publication in *JoCN*, we would appreciate it if the journal could let us know this prior to sending the manuscript out for review, so that we can consider another publication venue without delay.

Please do not hesitate to contact me if you need any further information about this submission.

Sincerely,

Christopher Cox

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