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Authors

Zhang, Qiong
Norman, Kenneth
Griffiths, Tom

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The method of loci is an optimal policy for memory search

Qiong Zhang
Princeton University , Princeton, New Jersey, United States

Kenneth Norman
Princeton University, Princeton, New Jersey, United States

Tom Griffiths
Princeton University, Princeton, New Jersey, United States

Abstract

The method of loci is a powerful mnemonic technique for memorizing a list of unrelated items. With a pre-specified route in a familiar "memory palace", one can encode material by attaching items to loci along this route, and later effectively recall them by mentally walking along the same route. Despite its efficacy, there is no existing model that explains why the method of loci promotes memory improvement during memory search. To fill this gap, we provide a rational account of why the method of loci improves memory. We define memory search as a task with the goal of minimizing retrieval cost, and demonstrate that the method of loci gives an optimal policy for this task. We discuss the implications of this result, and compare it with models of memory search without using mnemonic techniques.