

UC Merced

Proceedings of the Annual Meeting of the Cognitive Science Society

Title

Environment-sensitive generalization and exploration strategies

Permalink

<https://escholarship.org/uc/item/5md2z3vp>

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 45(45)

Authors

Goetmaeckers, Fien Ruth

Wu, Charley M

Verguts, Tom

et al.

Publication Date

2023

Peer reviewed

Environment-sensitive generalization and exploration strategies

Fien Goetmaeckers

Ghent University, Gent, Belgium

Charley Wu

University of Tübingen, Tübingen, Germany

Tom Verguts

Ghent University, Ghent, Belgium

Senne Braem

Ghent University, Ghent, Belgium

Abstract

Recent studies and models have been successful in describing human search in choice-rich environments in terms of different generalization and exploration strategies. However, it remains an open question how and to what extent people adapt these strategies to different environments. Therefore, we used a within-subject manipulation to study human search in two classes of environments, where the reward distributions differed in the strength of spatial correlations. These environments were chosen through simulations designed to maximize the need for deploying different generalization strategies. We describe participant behavior with the parameters of a model using Gaussian Process function learning to generalize and an Upper Confidence Bound to sample from unexplored options. Our results show that while participants adapted their exploration strategies, their generalization remained unchanged across environments. Together, these findings offer important first insights into how people adapt decision-making strategies depending on environmental demands in vast decision spaces.