



cognition

episodic memory

memory cues

mental and physical
health sciences

recall

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Dr. Criss is an expert in cognitive science investigating memory in particular. To best facilitate the development of a comprehensive and accurate model of memory, the research tests existing models to identify core assumptions and critical data necessary to model memory. Fully understanding memory requires the development of models that account for a range of tasks and a range of effects. In particular, Dr. Criss and her research associates build computer models to mimic the human memory system and understand the processes that underline human episodic memory. A multidisciplinary approach spanning experimental psychology, gerontology, computational science, and cognitive neuroscience lays the groundwork for a unified mechanistic account of memory. Empirical and theoretical accounts of memory have been advanced by adopting multiple techniques and employing sophisticated analysis of response time distributions to evaluate models of memory. This unique approach has the potential to revolutionize the field of memory. Her research has application in criminal justice and educational testing by understanding the properties of effective memory cues. The research also has potential in the treatment of memory disorders.

Education:

2004 Ph.D. Cognitive Psychology and Cognitive Science, Indiana University

1997 B.A. Psychology and Neuroscience, Miami University, Oxford, OH

Recent Research Projects:

Cued Recall: Theory and Data. National Science Foundation. PI: Criss, A.

The project aims to evaluate three critical components of memory:

- the properties that contribute to the ability of a cue to successfully elicit a memory, independent of the content of the memory;
- the nature of the content of the memory that is successfully retrieved and reported, independent of the cue; and
- how cues and content can interact so that a cue is predominantly effective for particular content, but not for other content (for example, sometimes a smell serves as a cue to elicit a very strong memory for a particular life event, such as a high school dance).

Combining Computational and Empirical Methods in Cognitive Neuroscience. National Institute of Mental Health. PI: Reder, L. Research Associate: Criss, A.

This is a training program for pre- and post-doctoral participants. The project has the specific goal of providing the trainees with the ability to formalize their theories about the mechanisms underlying normal and abnormal cognitive behavior and brain functioning. The trainees conduct research on cognitive neuroscience concerned with one of several different types of mental disorders - autism, bi-polar, depression, or schizophrenia.

Recent Scholarship:

Aue, W.R., A.H. Criss, and N. Fischetti, **“Associative information in memory: Evidence from cued recall,”** *Journal of Memory and Language*, vol. 66, pp. 109-122, Jan. 2012.

Criss, A.H., K.J. Malmberg, and R.M. Shiffrin, **“Output interference in recognition memory,”** *Journal of Memory and Language*, vol. 64, pp. 316-326, May 2011.



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