**Title**

When Experts Err: Using Tetris Models to Detect True Errors From DeliberateSub-Optimal Choices

**Permalink**

https://escholarship.org/uc/item/28k0m6md

**Journal**

Proceedings of the Annual Meeting of the Cognitive Science Society, 41(0)

**Authors**

Sibert, Catherine

Gray, Wayne

**Publication Date**

2019

# When Experts Err: Using Tetris Models to Detect True Errors From Deliberate Sub-Optimal Choices

**Catherine Sibert**

Rensselaer Polytechnic Institute, Troy, New York, United States

**Wayne Gray**

Rensselaer Polytechnic Institute, Troy, New York, United States

## Abstract

Error detection and correction is a vital part of skill acquisition, but when training a complex, real time, dynamic task, it can be difficult to isolate a true mistake in a sequence of decisions without clear correct choices. We use previously developed high-performing, human-like models of the video game Tetris (Sibert et al., 2017) to analyze individual piece placement decisions for players of high and low skill. In cases where the model's choice differed from the human's choice, we examine the eye fixations made during the placement decision to determine if the disagreement is caused due to the player performing at lower level than the model (i.e. not being aware of a better placement), the player performing at a higher level than the model (i.e. deliberately making a suboptimal move in service of a long term strategy), or the player making a true error.