

# An Analysis of Engine vs. Player Detection in Online Chess using the Jensen-Shannon Divergence

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## Introduction

Recently there has been a very high profile case of alleged cheating in the world of professional chess where the current reigning world chess champion, GM Magnus Carlsen, was defeated by GM Hans Niemann, a player that was ranked 42nd in the world and experienced massive growth in FIDE rating in the past two years. This has caused many skeptics in the chess community, including Carlsen himself, to suspect cheating may have been at play. The ensuing commotion has caused many hobbyists, like myself, to stop and consider how pervasive cheating really is in chess, more notably in online venues, and what methods are employed to flag engine-aided moves.

Current research ([link](#)) is being done by Dr. Kenneth R. Regan, of the Computer Science and Engineering Department of the University at Buffalo, employing the use of the Jensen-Shannon Divergence as a measure of similarity between two distributions.

## Specific Aims

Specifically, I would like to investigate how accurate this method of cheat detection is when using a dataset of engine vs. player games as opposed to player vs. player games. This leads me to question the standard at which cheating in chess is measured and whether accusations/bans of alleged cheating are issued justly. I chose to conduct an analysis of this method of cheat detection to promote transparency in this regard.

**Data Description**

**Research Design/Methods/Schedule**

**Discussion**

**Conclusion**

**References**