



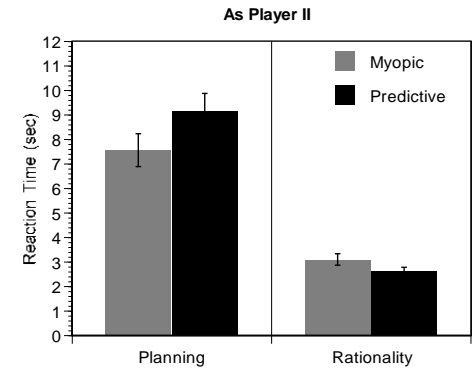
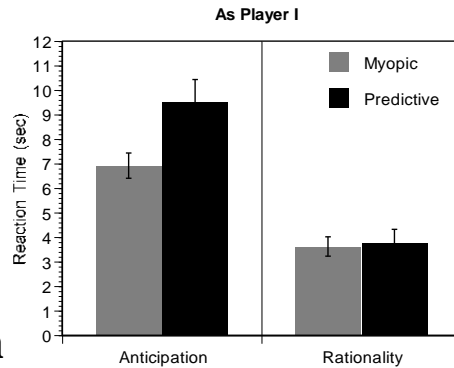
Our Team



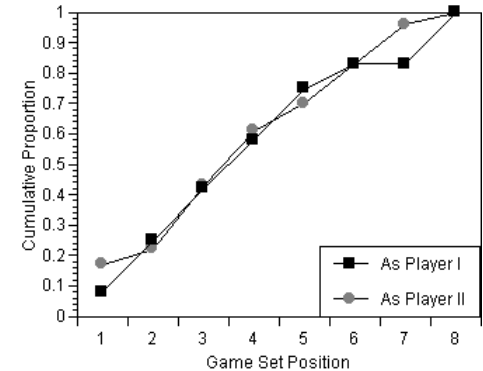
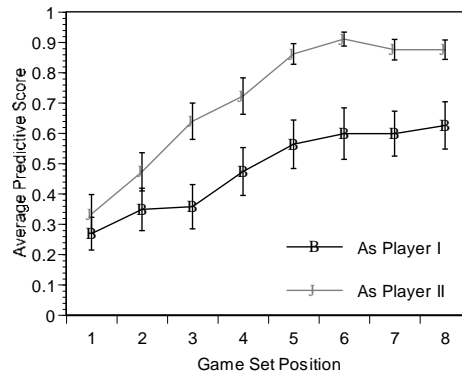
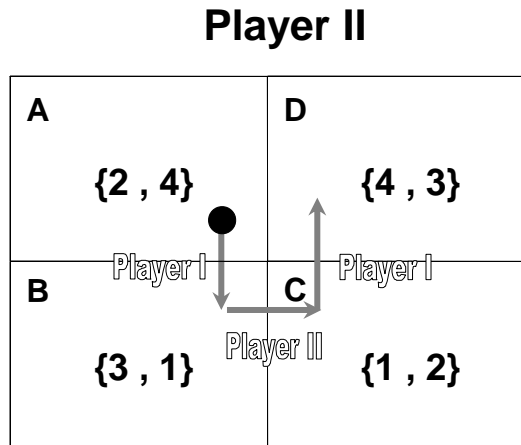
- **Name of Organization: University of Michigan Ann Arbor**
- **Lead Investigator: Jun Zhang, Ph.D.**
- **Current Team Members**
 - **Dr. Jun Zhang, Full Professor of Psychology**
 - **Expertise: game theory, mathematical modeling of cognition and behavior, machine learning, cognitive psychology**
 - **Dr. Colleen Seifert, Full Professor of Psychology**
 - **Expertise: case-based reasoning, memory and cognition, cognitive heuristics and biases, meta-cognition, knowledge transfer, human interface design, game simulation for training**

Expertise

We have experiences with human reasoning in games and mathematical modeling of behavioral strategies. We examined cognitive biases in the depth of recursive reasoning (“I think you think I think ...”) using a series of two-player, 3-move Stackelberg games.



We measured response times for myopic and deep reasoning about opponent’s move, and for rationality in decision-making.



We show that an initial cognitive bias towards a myopic, default model of opponent can be mitigated (though not eliminated for all subjects) after training on a set of strategic diverse games.

Perspective taking is shown to be a powerful tool in achieving deeper reasoning (64% versus 43% subjects eventually overcome anchoring bias with training).

From: Hedden & Zhang (2002) *Cognition*, Vol 85, pp1-36 and other publications.



Unique Qualifications



- **Investigator**

- Dr. Zhang has nearly 20 years of experience in cognitive psychology (including game theory), with mathematical modeling and empirical experimentation approaches.
- From 2007-2010, Dr. Zhang was called into government service as AFOSR's Program Manager for the Cognition and Decision Program. His expertise was utilized in source selection of DoD projects on cognitive modeling, human system interface, socio-cultural prediction (MINERVA). His work on behavioral games and meta-games was briefed to DARPA Deep Green project on COA prediction/analysis.
- Dr. Zhang is elected President of the Society for Mathematical Psychology, and appointed Associate Editor for Journal of Mathematical Psychology.
- Dr. Seifert has conducted ONR-funded research on reasoning and training and NSF-funded research on cognitive heuristics in interface design. She consulted on a project led by Northwestern University on Game Simulation for training EPA field agents.

- **Research infrastructure**

- University of Michigan's Psychology Department consistently ranks top 5 in the nation.
- Leveraging Ph.D. program in Cognition and Cognitive Neuroscience, Culture and Cognition and Formal/Quantitative Methods and Modeling certificate programs.



Seeking Capabilities



- **Looking to team with a Game and Simulation industry partner with capabilities in Virtual World (VW), Massive Multiplayer Online Games (MMOGs), and related visualization/animation platforms;**
- **Interested in participating, either as a prime or a sub, in content development, behavioral modeling, interface design, and subject testing and validation;**
- **Also interested in collaborating with academic researchers of cognitive biases and behavioral game theory, especially concerning reflexive reasoning, deception, and topology on game-theoretic “type” space (of players).**



Contact Information



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