

Enhanced Immersive Technologies to Improve Collaborative Decision Making

Leif Berg & Judy Vance Ph.D. (ISU) | Sara Behdad & Deborah Thurston Ph.D. (UI)  NSF Grant CMMI 1068926

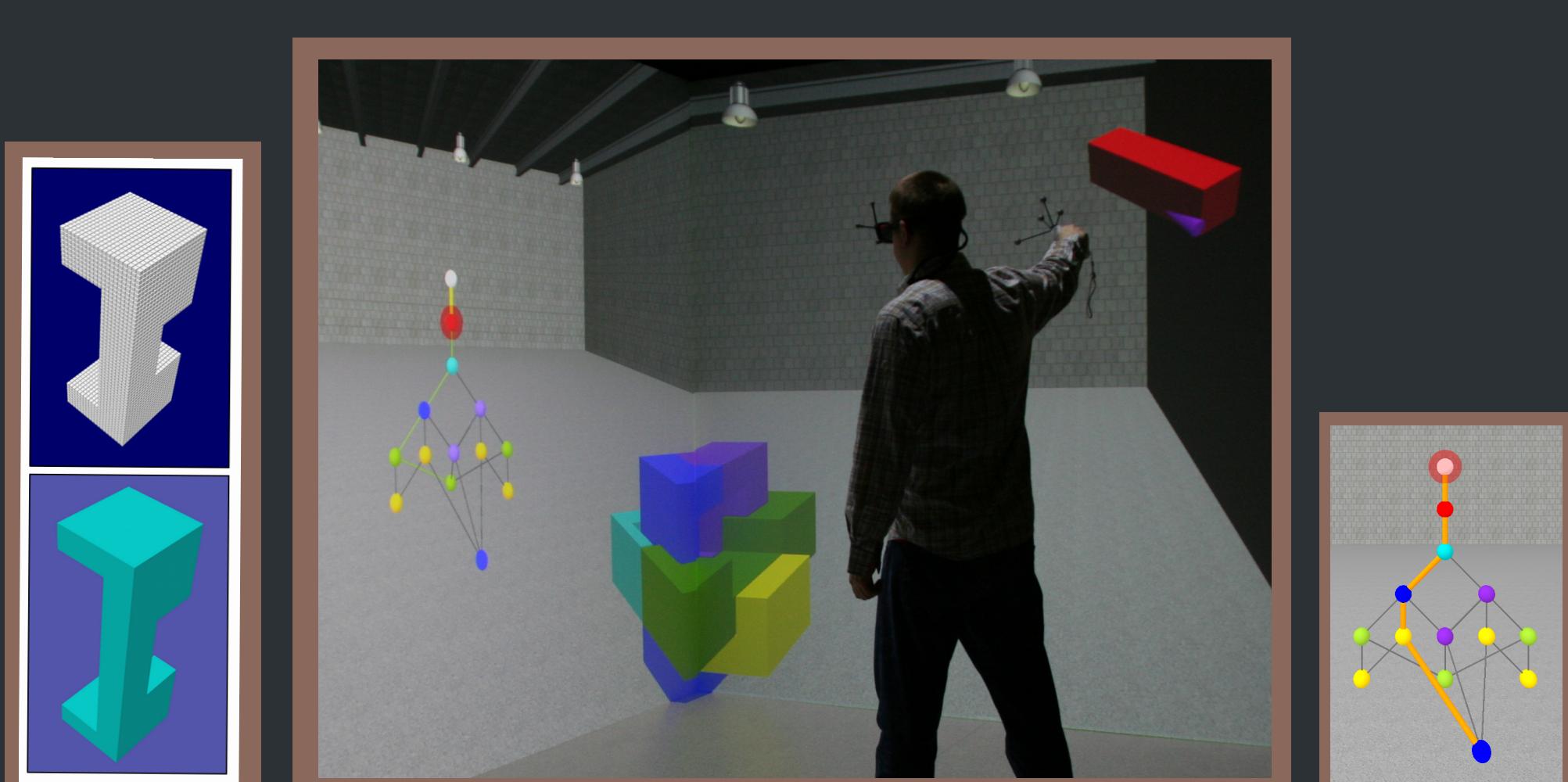
The objective of this research is to explore and evaluate new design processes, based on immersive technology, that support **design team interaction** that could not be achieved through traditional interfaces

Mathematical algorithms are often used to model trade-offs.

How can we better integrate **HUMAN KNOWLEDGE** into decision making?

Increase understanding among experts from various domains through leveraging effective **natural communication** mediums
(Seeing, Hearing, Touching, etc.)

CURRENT RESEARCH



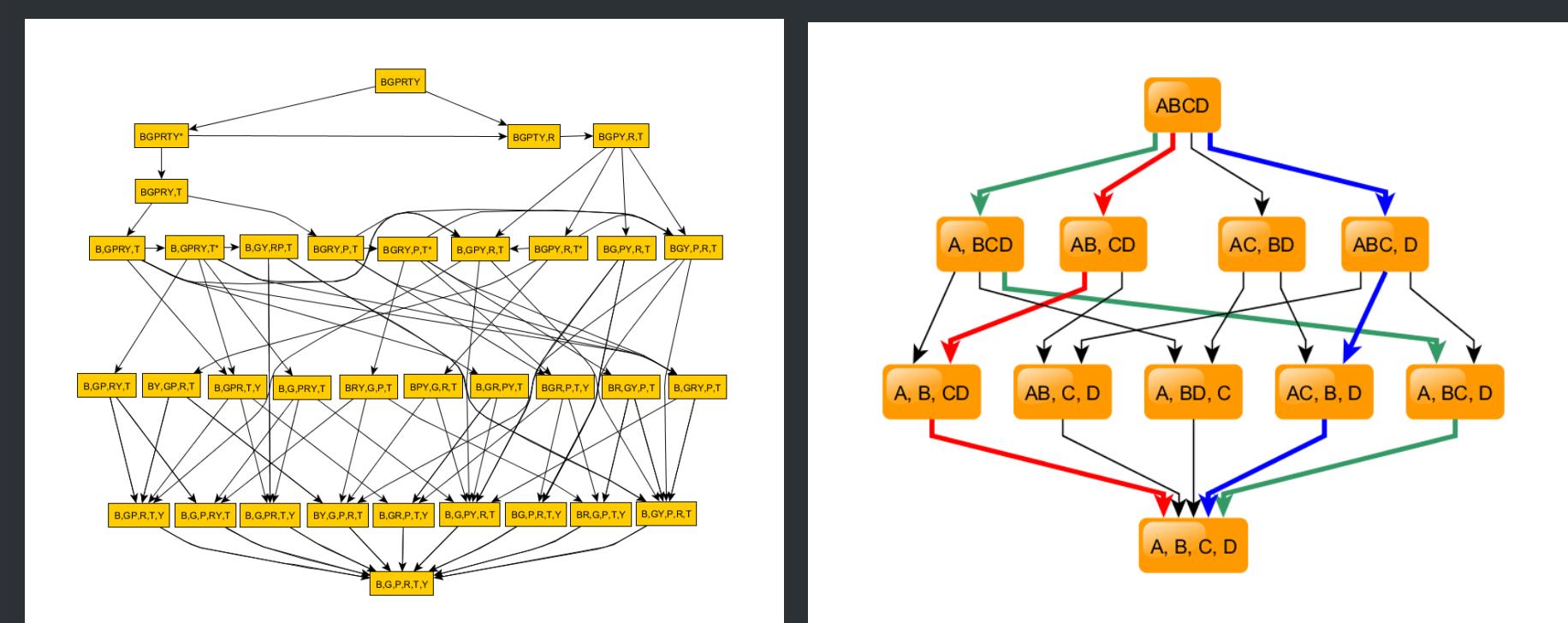
Combination of abstract representation with virtual geometry in immersive environment aids in **UNDERSTANDING** trade-offs

Mathematical model results in an optimum disassembly path

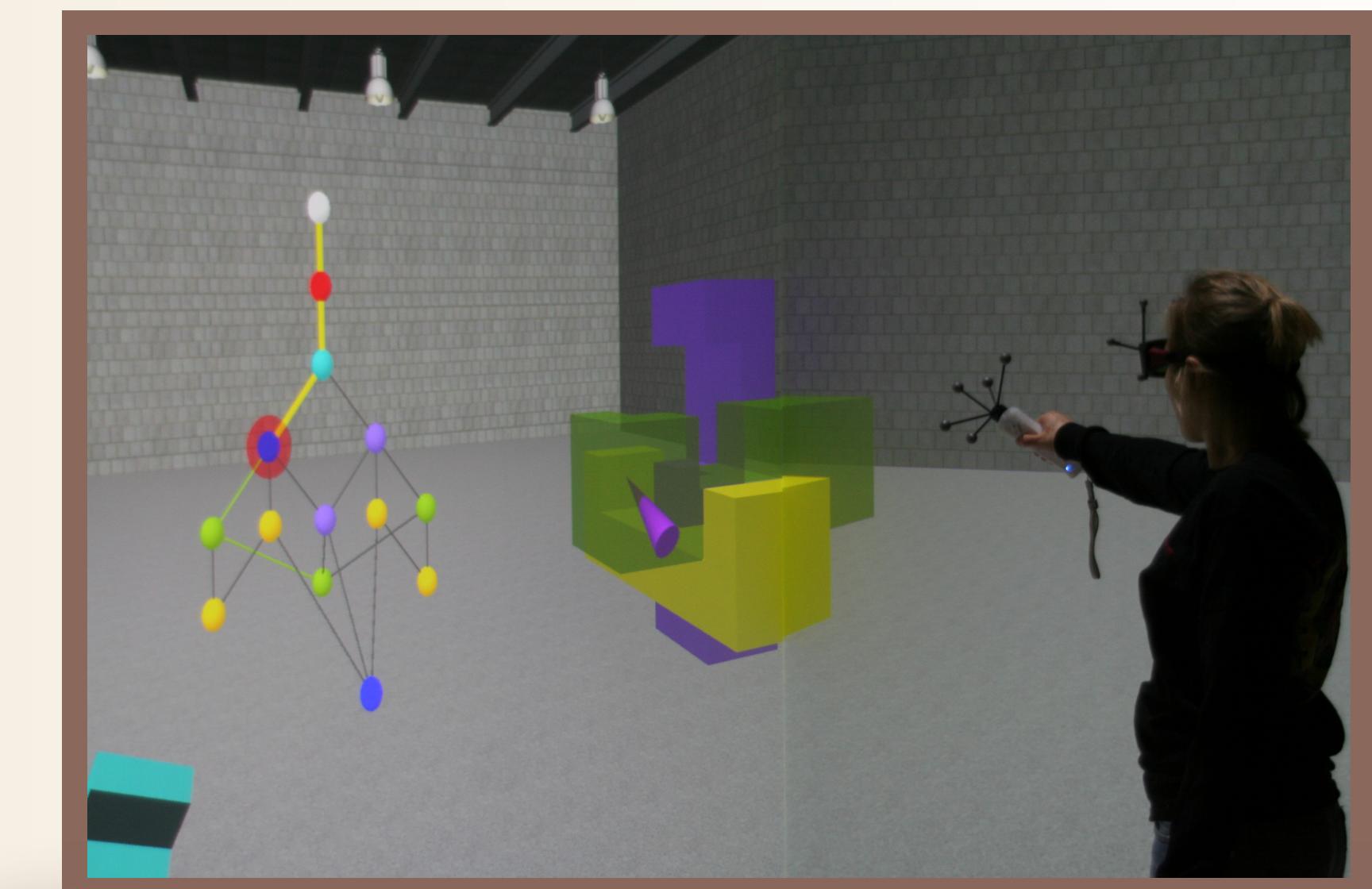
$$f_i(s) = \max_{j \in J} \{ U_j(x, y, s_i, n_{i+1}) + f_{i+1}(n) \}$$

Users can explore alternate paths in an immersive environment

Disassembly Sequence Planning



FUTURE WORK



Future work will concentrate on employing immersive computing technologies (ICT) to overcome **cognitive biases** which will lead to better design decision making