Overview of Soar Research at the University of Michigan

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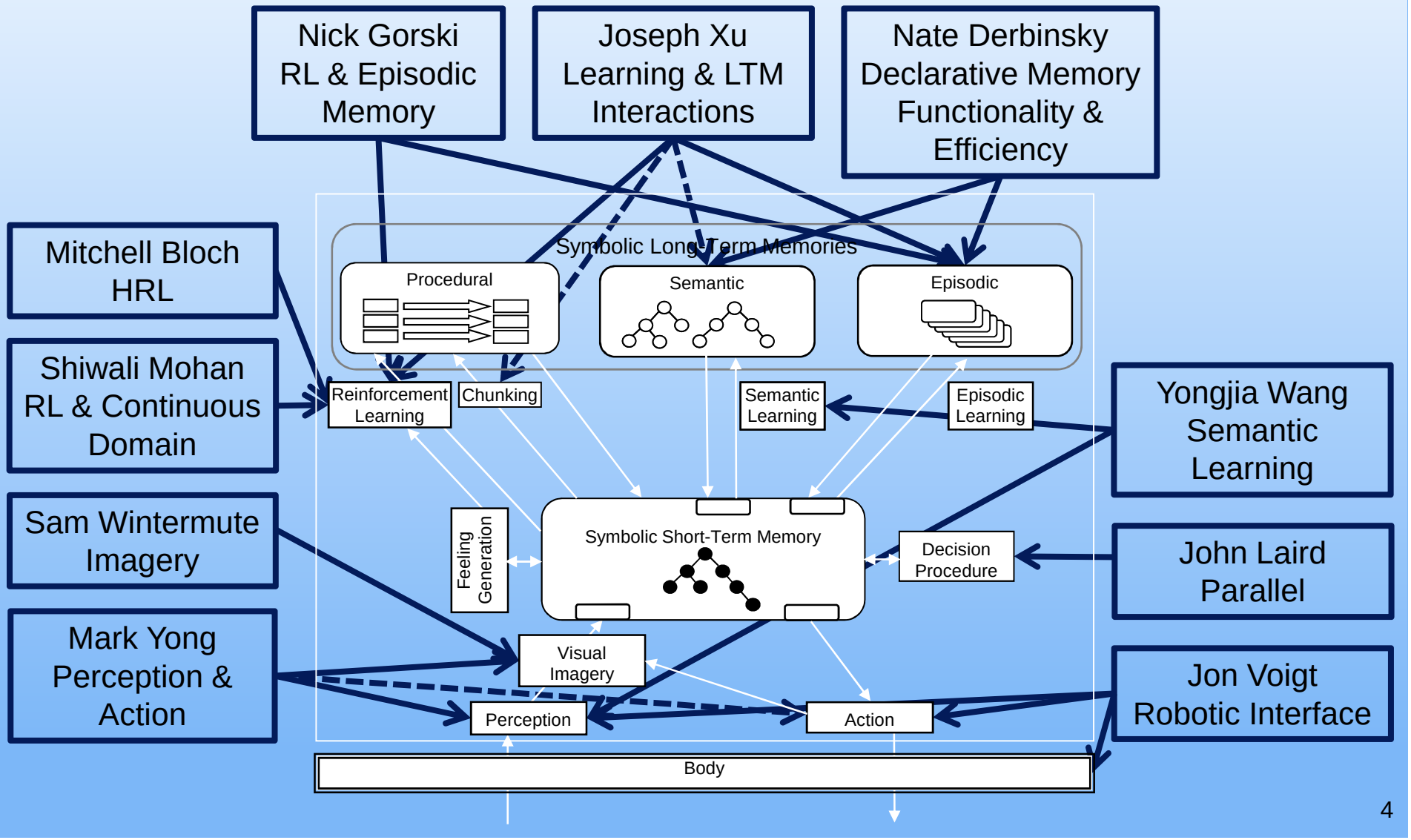
Research Goals and Approach

- Goal:
  - General, human-level behavior
  - Human capabilities across a broad range of tasks
- Approach:
  - Cognitive Architecture = fixed structures, mechanisms, and representations
  - Emphasized functionality & higher level cognition
    - Effective and efficient end-to-end performance
    - Scale to very large knowledge bases
    - Make use of whatever forms of knowledge available
    - Meta-reasoning, episodic memory, appraisals

Overview of Research

- Structure:
  - How research projects fit into the structure of Soar architecture.
- Function:
  - How research projects are investigating different functionality in support of human-level intelligence.

Structural Analysis



Functional Analysis

- Interaction with Robotic Environment
  - Jon Voigt, Mark Yong
- Reasoning about space and images
  - Sam Wintermute
- Learning new concepts from experience
  - Yongjia Wang
- Learning to improve performance from experience
  - Shiwali Mohan, Mitchell Bloch, Nick Gorski, Joseph Xu
- Efficient implementations of declarative LTM
  - Nate Derbinsky
- Parallel Execution
  - John Laird