

SoarSim

An Experimentation
Framework

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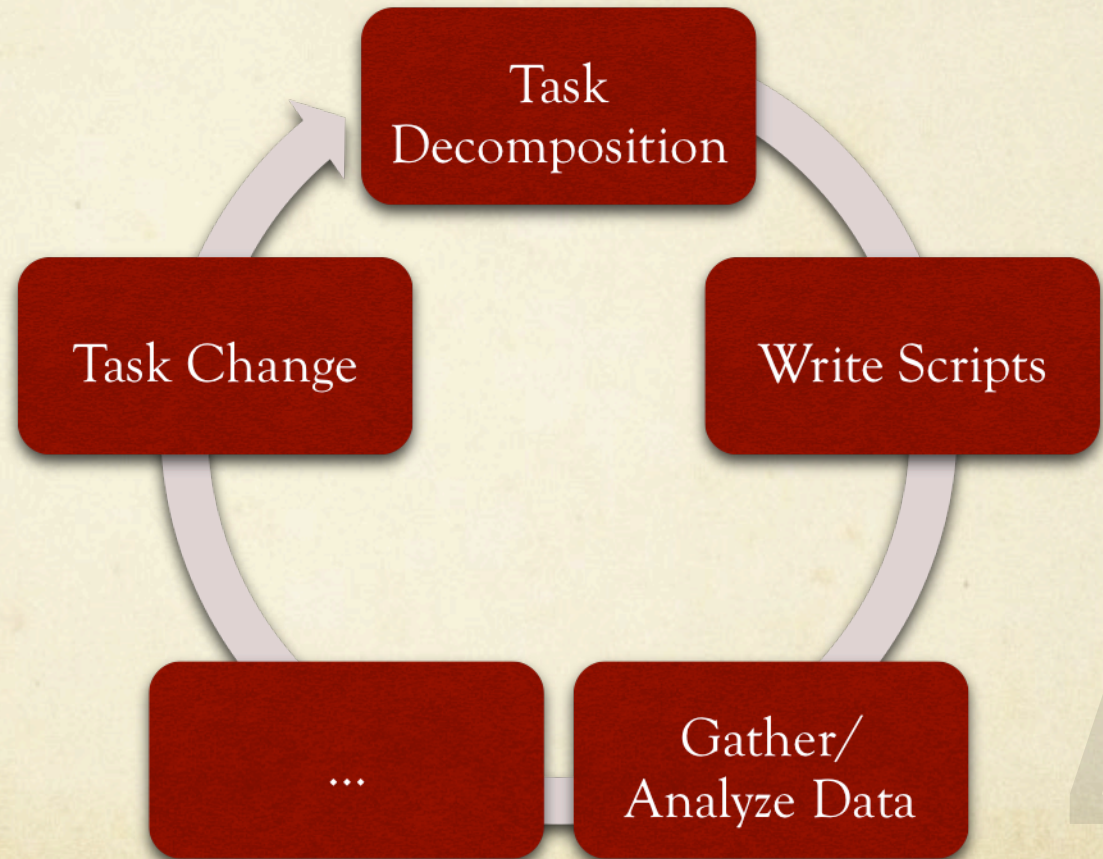
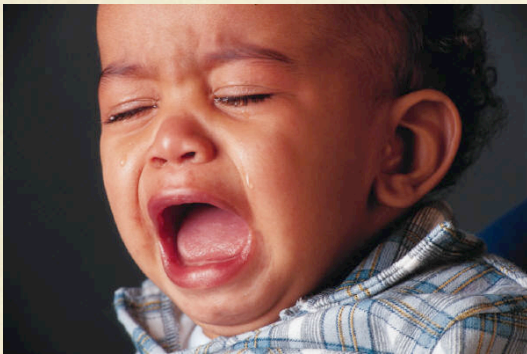
Outline

- Motivation
- SoarSim 0.1 Alpha
- Nuggets & Coal
- More Information

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- **Motivation**
 - A Common Story
 - A Better Way?
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Soar Experimentation: A Common Story



A Better Way?

- Abstract away common functions
 - Eliminates need for redundant code
- Establish fixed data structures, mechanisms, and processes
 - Extends code lifecycle
 - Facilitates code re-use and sharing
- Result: an experimentation framework for running academic experiments involving many repeated episodes [and potentially agent learning]

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 - Goals
 - Execution Cycle
 - Functionality for Free
 - Evaluation
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Goals

- Platform Independent
- Compatible with All Soar Environments
 - CLI, Soar2D, SML, etc.
- Easy, Useful with Minimal Configuration
- Highly Extensible

Execution Cycle

- System Initialization
- Experiment Initialization
- For Each Trial
 - Trial Initialization
 - For Each Episode
 - Episode Initialization
 - Episode Execution
 - Episode Processing
 - Trial Processing
- Experiment Processing

Functionality for Free

- Easy file reading/writing in arbitrary formats
 - text, ini, csv, xml, ...
- Automatic saving to disk of experiment state
 - configuration files, shell scripts, logs, agent source, time/statistics, randomization, ...
- Robust compatibility with CLI and Soar2D
- Continuity of Soar-RL rules across episodes

Evaluation

Goal	SoarSim 0.1 Alpha	Nugget	Coal
Platform Independent	PHP \geq 5.2.0	Pre-installed on *nix, avail. for Windows	Who knows PHP?
Soar Compatibility	Works with <u>any</u> shell- executable program	Future proof?	
Easy/Useful to Start	2 commands (no code): TestCLI or Soar2D with full data dump	Great for quick experiments	No GUI
Extensible	All settings changeable via custom code, most via config files	Extends to a large space of experimental designs	No GUI

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Nuggets & Coal

- Nuggets
 - SoarSim is a well-documented, highly extensible framework for experimentation in Soar.
 - With two commands, you too can experiment with your Soar[2D] agents!
 - SoarSim 0.1_{alpha} is available for download today!
- Coal
 - Really, who knows PHP?
 - “The monomaniacal focus on right now and the fastest, easiest possible way to do things leads beginners down the wrong path - or as I like to call it, ‘PHP’.” - codinghorror.com
 - No GUI

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More Information

- <http://winter.eecs.umich.edu/soarwiki/Development/Experimentation/SoarSim>
 - Source download
 - Documentation
 - API