

Graphic Visualization of Agent Thinking

Randolph M. Jones,
Glenn Taylor, Rich Frederiksen,
Laura Carter (et al.)

The Situational Awareness Panel

- Graphically presents
 - Agent's current picture of situation
 - Current perception of world
 - Internal states and goals
 - Significant milestones that can (and should) affect behavior

Original Prototype

Altitude: 21426 Speed: 386 Heading: 336 Radar Azimuth: -29 Radar Elevation: -9

Active goals:
execute-mission
intercept
employ-weapons
get-missile-lar
cut-to-ls
wait

Milestones:
Current Time:

```
00:02:37 Detect new contact A6
00:02:37 Detect new contact A4
00:02:42 Take off
00:02:43 Take off
00:02:44 Take off
00:08:30 Detect new contact A21
00:08:30 Detect new target group G2
00:08:30 Target agent A21 into group G2
00:08:30 Intercepting group G2
00:08:30 Agent A21 is primary threat
00:08:30 Agent A21 is NOT in LAR for aim-9
00:08:30 Agent A21 is NOT in LAR for aim-7
00:08:30 Agent A21 is NOT in LAR for aim-120
00:08:32 Detect new contact A28
00:08:32 Target agent A28 into group G2
00:08:32 Agent A28 is primary threat
00:08:32 Agent A28 is NOT in LAR for aim-9
00:08:32 Agent A28 is NOT in LAR for aim-7
00:08:32 Agent A28 is NOT in LAR for aim-120
00:08:33 Detect new contact A33
00:08:33 Target agent A33 into group G2
```

Blue
Red
Unknown
Inactive

Visual Radar Memory

Dismiss View Scale (miles): 100

Expanding the Role of the SAP

- Project funded by Naval Air Warfare Center Training Systems Division (NAWCTSD), US Navy
 - Currently in second of three years
- Turn the SAP into a tool for developers, subject-matter experts, trainers, and trainees

Project Goals

- Improve effectiveness of training (by improving understanding of agent behavior)
- Improve validation and acceptance of agent behavior
- Improve agent development
- Generalize across behavior architectures

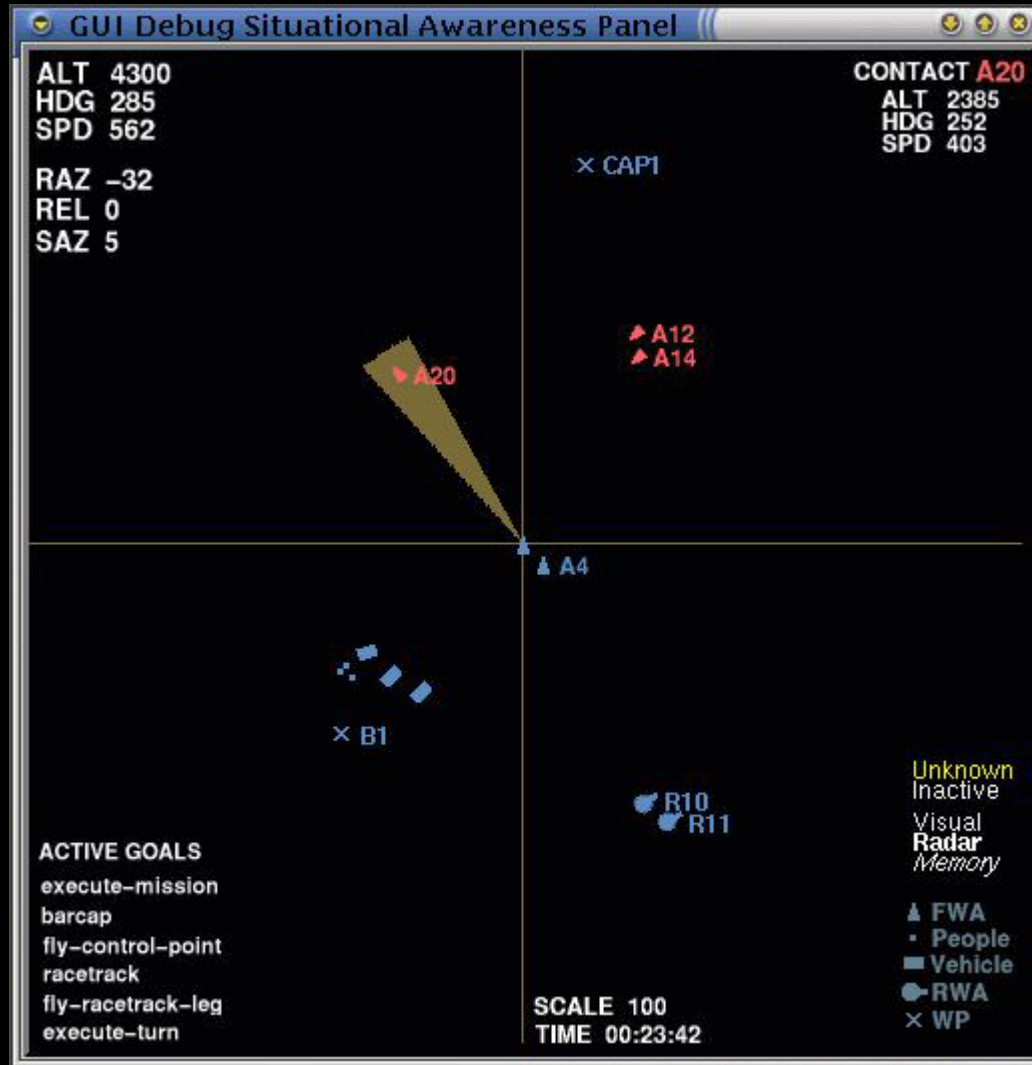
Technical Objectives

- Value-oriented improvements in usability
- Symbol-level API
 - For compatibility across cognitive architectures
- Behavior logging and replay
- Point-and-click question answering and behavior traceability

This Year's Accomplishments

- Software component-oriented API design
 - Short-term and Long-term knowledge objects; viewer and logger objects
- Reimplementation of prototype
 - Including integration with task-frame agents
 - [Soar demo](#), [task frames demo](#)
- Usability testing by Ritter

New Prototype Layout



In Development

- Inquiries about selected goals and alternatives
- Replay of reasoning
- Traceability through long-term knowledge to documentation
- Study of prototype reimplementations in Java
 - Including network interface