

Connecting ACT-R to off-the-shelf software

Frank E. Ritter and Rob St. Amant

ritter@ist.psu.edu / stamant@cs.ncsu.edu

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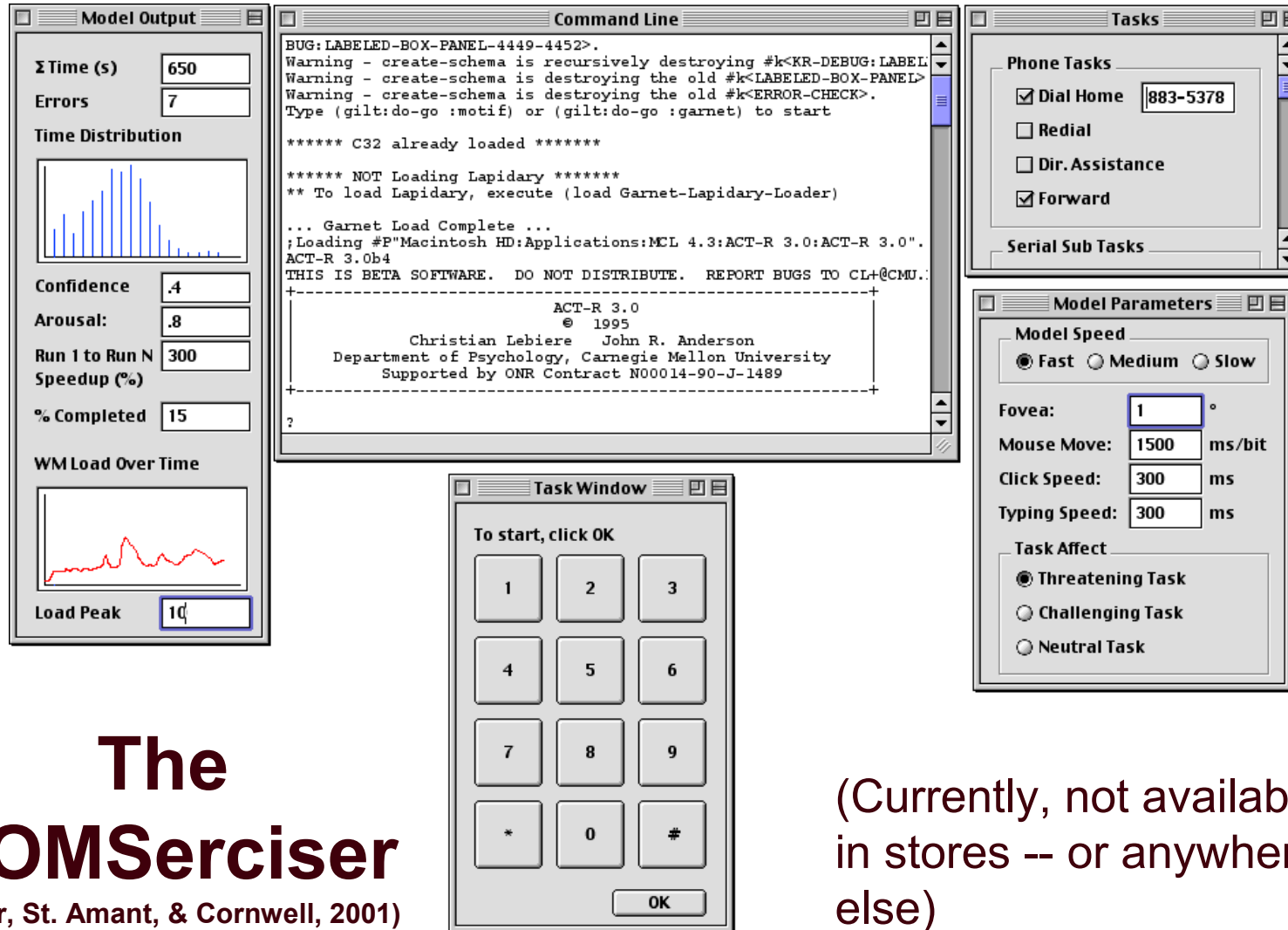


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A cognitive model in a box

- User interface evaluation is often ad hoc, difficult, and time-consuming.
- Cognitive modeling within a UTC answers one of these complaints—what about the others?
- We need easier ways to connect cognitive models to existing systems, and more comprehensive tools for model development and analysis.

One vision of the future



**The
GOMSerciser**
(Ritter, St. Amant, & Cornwell, 2001)

(Currently, not available
in stores -- or anywhere
else)

ACT-R

Displays
(R. Jones)
Belavkin
Councill
Harrison
Bothell

Models: Anderson/Young/Howes/
Taatgen/Fleetwood/Gunzelmann/RPI/Sa
Ivucci/ Peebles/

Task Descr.
ACT-R Tut. 9
iGen

The screenshot displays the ACT-R software interface with several windows:

- Model Output:** Shows performance metrics such as Σ Time (s) = 650, Errors = 7, Confidence = .4, Arousal = .8, Run 1 to Run N = 300, Speedup (%) = 300, % Completed = 15, and WM Load Over Time. It includes two graphs: a blue bar chart for Time Distribution and a red line graph for WM Load Over Time.
- Command Line:** Displays system messages and the ACT-R 3.0 logo, including the text: "ACT-R 3.0 © 1995 Christian Lebiere John R. Anderson Department of Psychology, Carnegie Mellon University Supported by ONR Contract N00014-90-J-1489".
- Tasks:** Lists "Phone Tasks" with options for Dial Home (checked, 883-5378), Redial, Dir. Assistance, and Forward (checked). It also shows "Serial Sub Tasks".
- Model Parameters:** Includes "Model Speed" (Fast, Medium, Slow), "Fovea" (1°), "Mouse Move" (1500 ms/bit), "Click Speed" (300 ms), and "Typing Speed" (300 ms). Under "Task Affect", "Threatening Task" is selected.
- Task Window:** A numeric keypad with the number "1" circled in red, and an "OK" button.

BehMod
Belavkin
Quigley
Klein
(PSI)

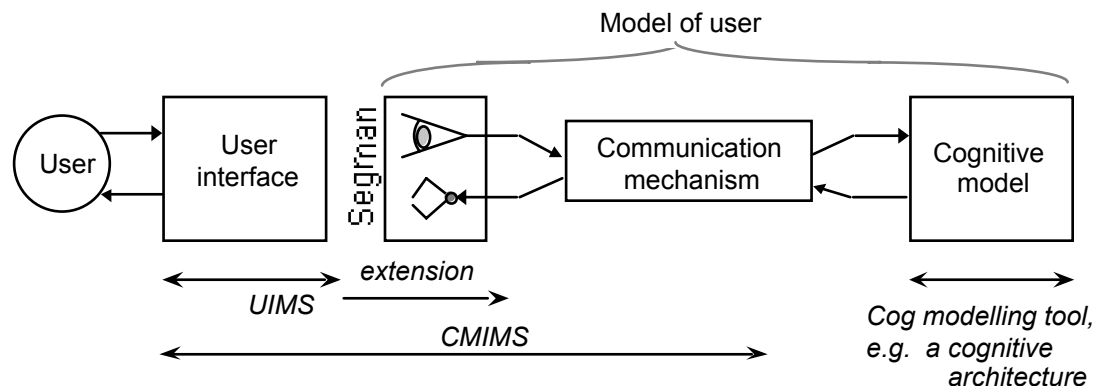
ACT-R/PM

- Segman
- (Hornof)

Ind. Diff.
MHP/
Scholles
Lovett

Doing our part


- We are building ACT-R models that interact with off-the-shelf-applications



- We are designing integrated tools for model development, model execution, and analysis of model execution traces

Interfaces we have known

Main Camera



Recognized Objects

ERI box (5/140 3%) (243,127,26.0 Inches)

Navigate

Robot Coordinates

x: 0.0 y: 0.0 [Reset]

Gripper Recognize Speaker Push to Talk

telephone

341 [Num.Delete]

| | | | |
|---|---|---|----------------|
| 1 | 2 | 3 | [Ans. Machine] |
| 4 | 5 | 6 | [Address Book] |
| 7 | 8 | 9 | |
| * | 0 | # | |

Mute [Dial] [Volume 1]

Ring [Call Await]

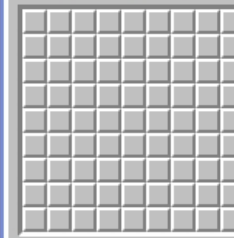
[Phone No. of Incoming Call] [Idle]

[Clear] [Answer] [Finish] [Exit]

Minesweeper

Game Help

000 [Smiley] 000



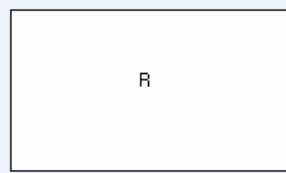
Untitled - Notepad

File Edit Format View Help

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R.bmp - Windows Pi...

R

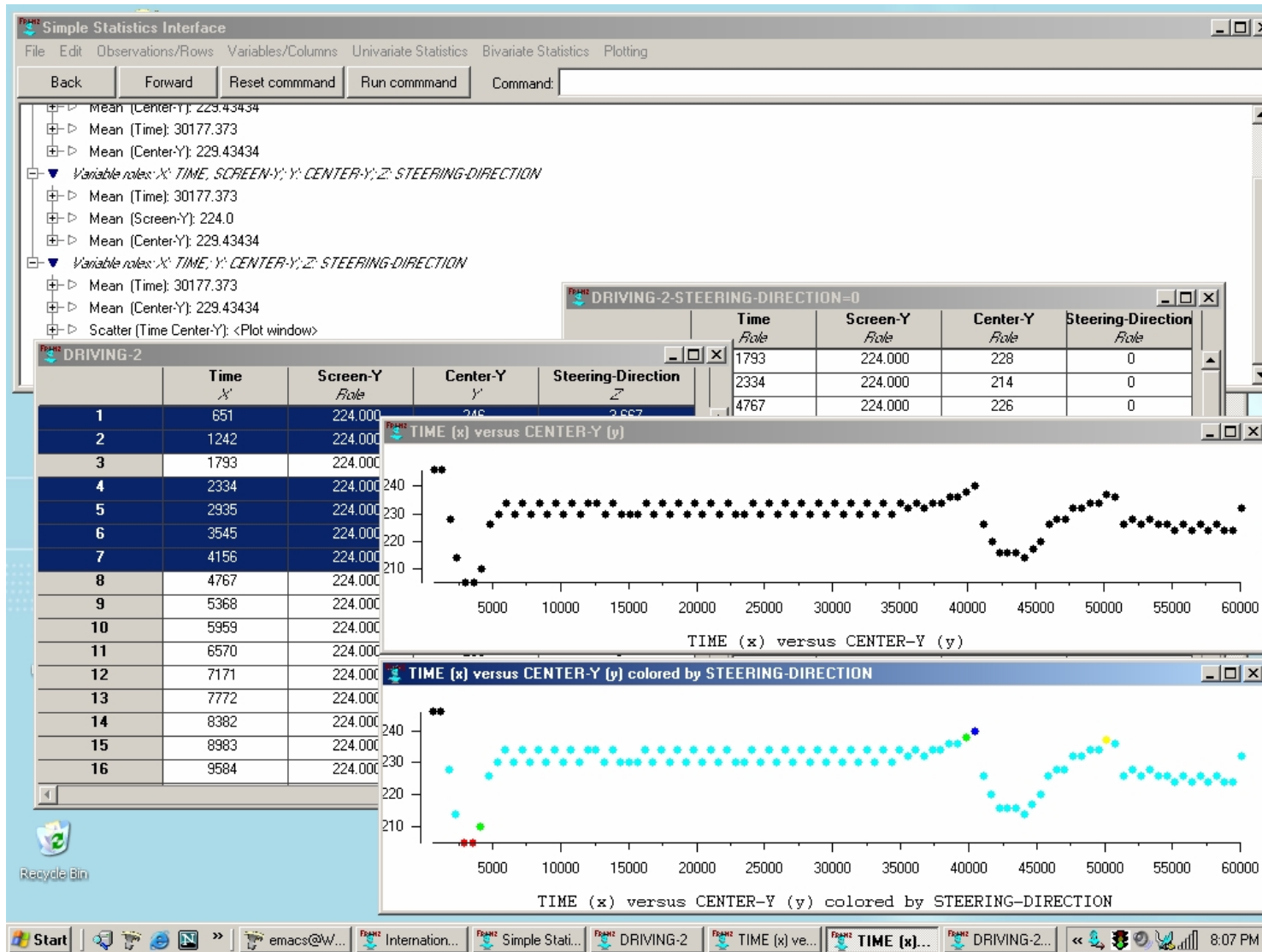


DUI - Netscape 6

Checkpoints: 0 Speed: 0 Driving Time: 8



Analysis of model execution traces



Where do we go from here?

■ More sharing

- Language for ACT-R/EPIC + tasks + environment + . . .
- Help from authors, keep models as theories public
- Help from ACT-R central?
- More sharing with us!

■ Steal our Zeitgeist!