

User Interfaces and Scheduling and Planning (UISP)

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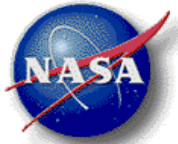
Jeremy Frank
NASA Ames Research Center



Why Are We Here?

We solicited papers and participation in this workshop to discuss the following themes:

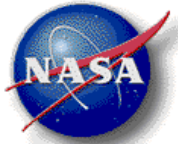
- User Interfaces for Planning and Scheduling Systems
- Planning and Scheduling to build better user interfaces (UIs)
- Emerging UI technology



Why Are We Here?

User Interfaces for Planning and Scheduling Systems:

- Increase usability of ICAPS derived technology.
- Stimulate UI-related automated planning research in the ICAPS community.
- Opportunities to collaborate with other communities (e.g. Human Computer Interaction).

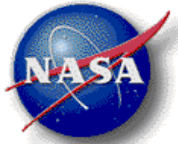


Why Are We Here?



Planning and Scheduling technology to build better UIs.

- ICAPS derived technology to build UI workflows.
- Automated reasoning systems to automatically generate the UI itself.



Why Are We Here?



Emerging UI technology

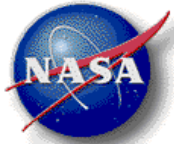
- Virtual Reality and Augmented Reality.
- Natural Language Processing.
- Haptics.



Ancient History (>10 years)



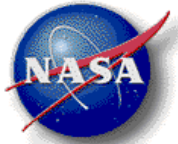
- Spoken language interfaces to AI planning
 - Dowding et al. 2002
 - DARPA CALO project (origins of Siri) (2005)
- Integrating automated reasoning and humans
 - Maldague et al. 1997, Myers et al. 1999, 2000, Klau et al. 2002, Anderson et al. 2000
- Automated reasoning to build UIs
 - Weld et al. 2003, Gajos et al. 2004
- ...and much more!



Not-So-Ancient History (within 10 years)



- Aerospace (ahem, NASA) Applications
 - Bresina et al. 2005, Aghveli et al., 2007, Deans et al. 2011, Meuleau et al., 2009, Frank et al. 2017
- Integrating automated reasoning and humans
 - Mohseni-Kabir 2015
- Planning visual search strategies for improved UIs
 - Chen et al. CHI 2015
- Human Robot Interaction
 - Nikolaidis et al., 2012, Lasota et al., 2015, Gombolay et al., 2017
- Knowledge Engineering Tools
 - Vaquero et al., 2007
- ...and much more!



Workshop overview



- 8 papers
 - 6 long, 2 short
- 2 invited talks
 - 1 academic, 1 industry
- 1 panel
 - Mix of perspectives
- Discussion
 - What next?



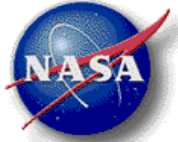
Some Videos:

NASA Exploration Ground Data System (long)

- <https://www.youtube.com/watch?v=CrDdtVEJyCk>

Orion Cockpit (short)

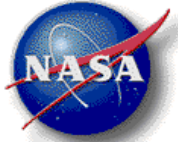
- <https://www.youtube.com/watch?v=cM4qKfNuFX4>



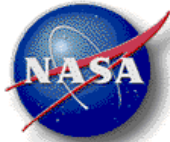
Panel: Google Doc



- <https://docs.google.com/document/d/13cYrbZEAMzyESO4FoEuJmKVS7mXBZyM-AZ5WgqNravM/edit>

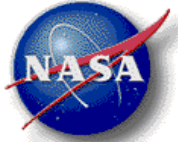


Let's get on with it, then!



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