Puffer 1 acts as a "data mule", transferring sample data from Puffers 2 and 3 to the base station

Puffer 3

Puffer 1

Base station

Puffer 2

32:50
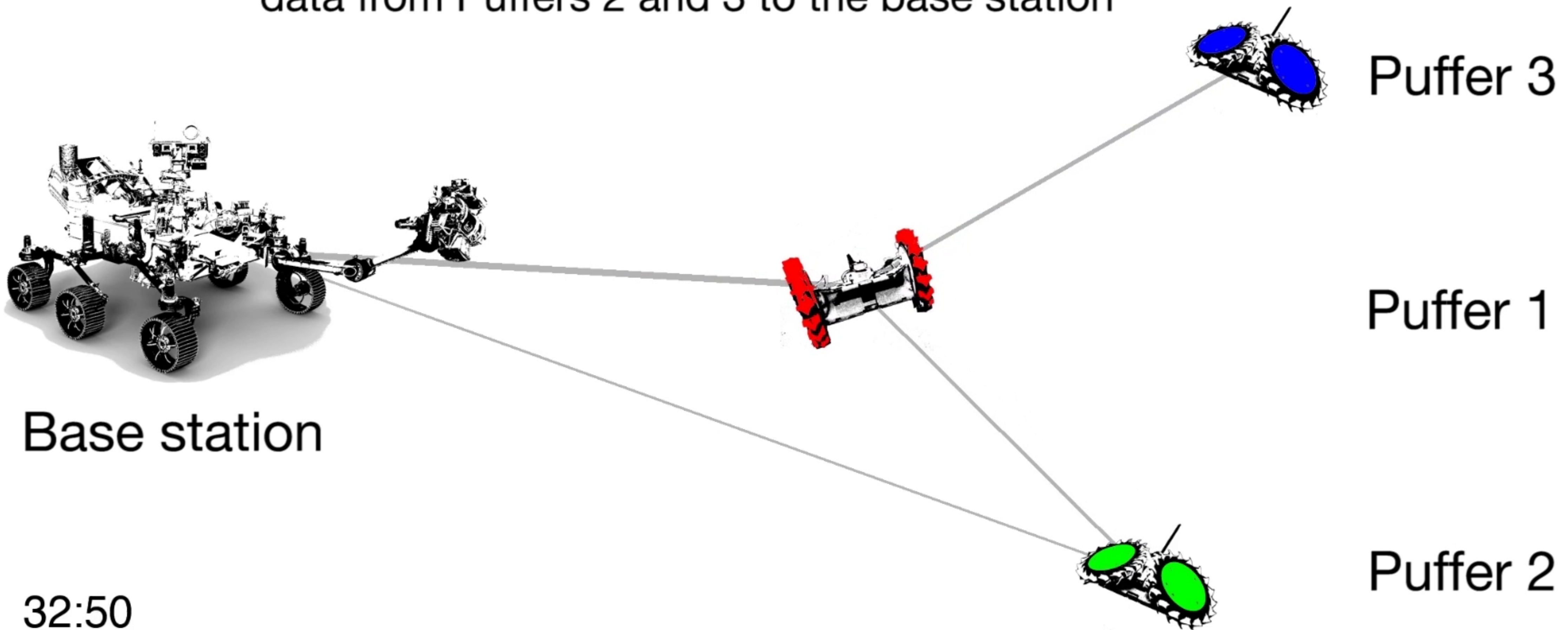
Research Objective

Develop methods and algorithms for visualizing HSM-based complex multi-agent behavior during execution and debugging

Test and apply these methods/algorithms with different JPL autonomy systems/programs (e.g., MOSAIC, SubT, and CARACaS)

Research Approach

Literature Review: Theoretical approaches, toolkits and frameworks for visualization of state machines, and 2D/3D representations

Design: State Transition Graphs to map 2D input to 3D output and address scalability. Collaboration with other ARCS Fellows.
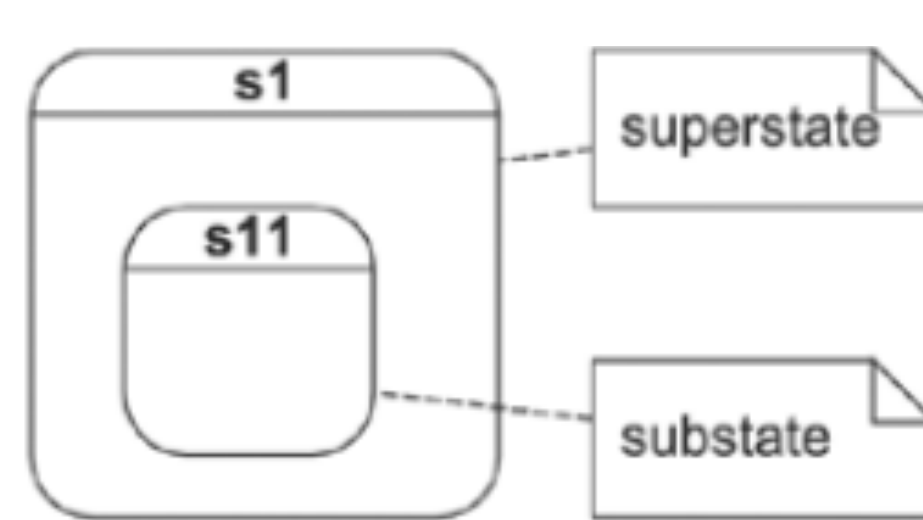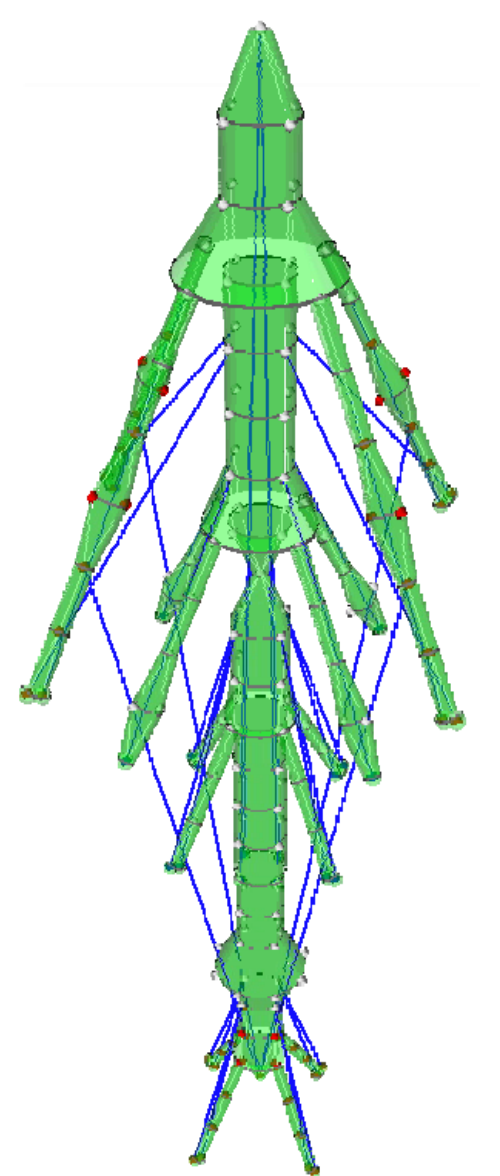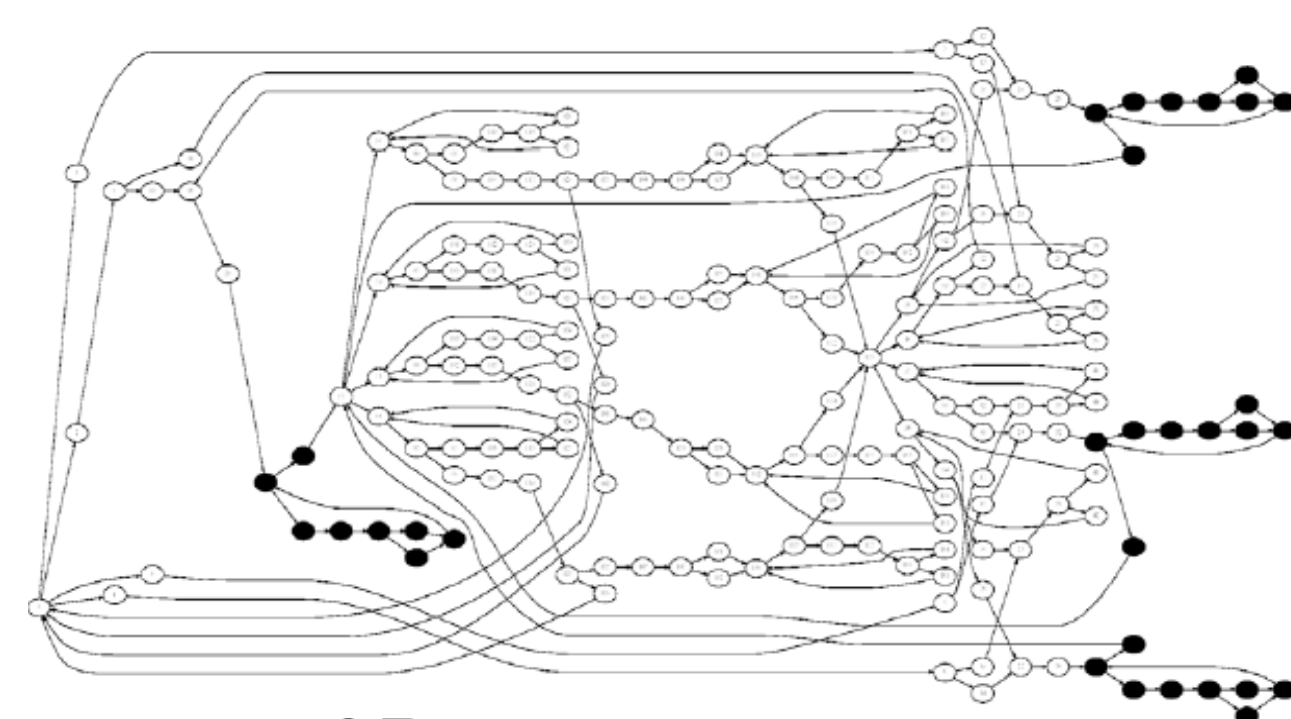
Implementation: Software and interface implementation and conduct usability testing
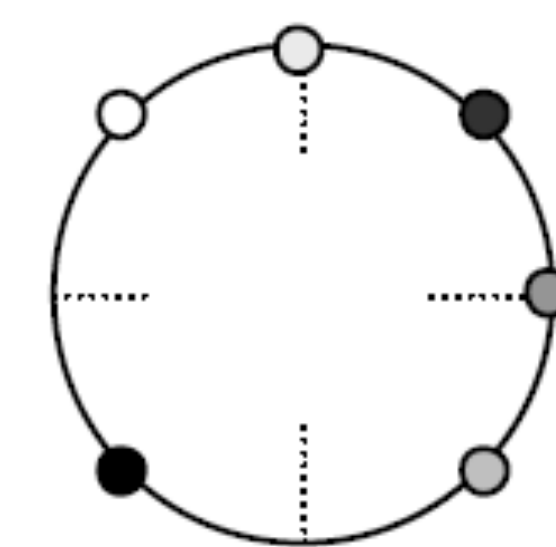
Research Team

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ARCS Advisor: Li Liu, Ph.D. Computer Science

NASA Collaborators: Federico Ross, Ph.D, JPL. Scott Davidoff, Ph.D, JPL

2D Representation

3D Representation

HSM Example

Clustering Nodes

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