

Predictive Human Performance Analysis

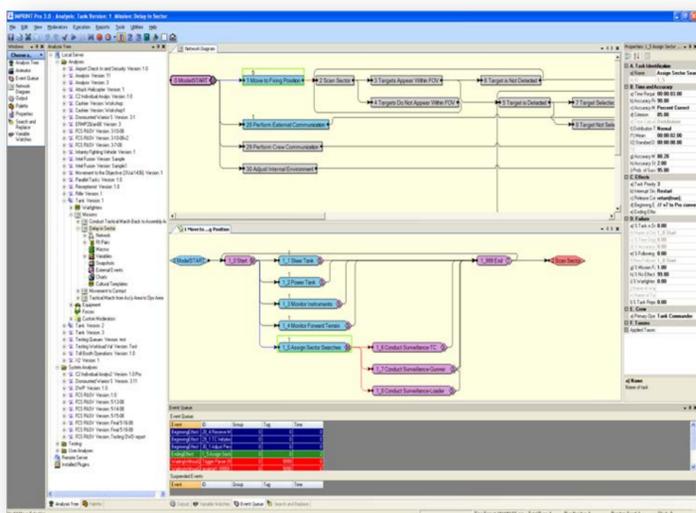


S&T Campaign: Human Sciences
Human Systems Integration

Christopher Best, (410) 278-8873
christopher.j.best17.civ@mail.mil

Research Objective

- Enable well-informed acquisition decisions by developing human performance modeling tools that predict performance with conceptual system designs early and throughout the acquisition cycle (e.g. Improved Performance Research Integration Tool (IMPRINT))



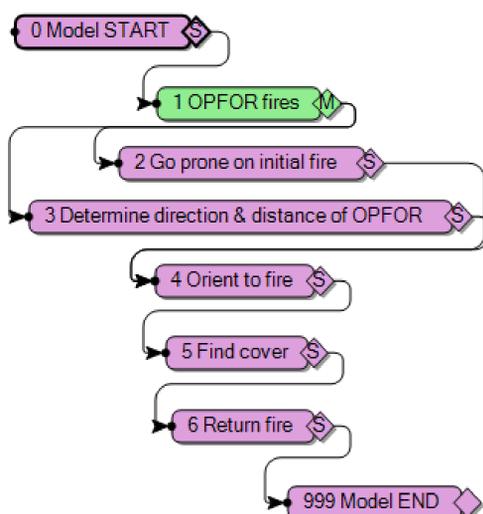
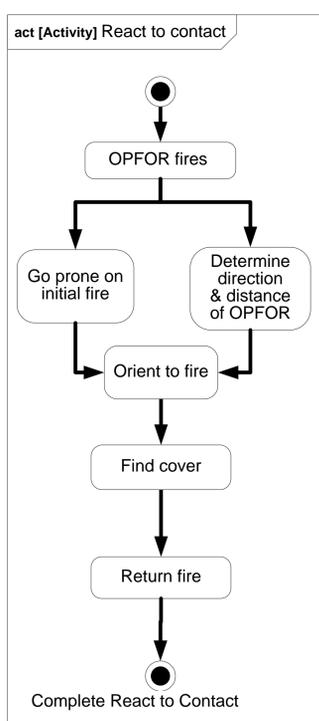
IMPRINT Analysis Tool

ARL Facilities and Capabilities Available to Support Collaborative Research

- Software Assessment and Usability Laboratory (SAUL)
 - Reconfigurable laboratory space suitable for empirical data collection and software assessment and usability tests
- Improved Performance Research Integration Tool
 - Predict human performance using discrete event simulation
 - Optimize human and system performance using integrated products from Model Based SE (MBSE) and Model Based HSI
 - Set realistic human and system requirements for conceptual system designs
 - Assess effects of alternate system-crew function allocations on operator and crew workload
 - Assess required maintenance man-hours
 - Assess performance under extreme conditions
 - Examine performance as a function of personnel characteristics and training
- Interact with 600 users supporting Army, Navy, Air Force, Marines, NASA, Department of Homeland Security, (DHS) Department of Transportation (DOT), and other organizations
- Collaborate with IMPRINT analysts representing decades of experience and a history of successful system assessment and evaluation throughout the acquisition cycle

Challenges

- Incorporate Systems Engineering (SE) methodology into the development of HSI models and analyses
- Reconcile the divergent vocabulary, modeling approaches, and goals between human performance simulation and SE analysis tools



Complementary Expertise/ Facilities/ Capabilities Sought in Collaboration

- SEs with expertise in MBSE methods and in tool development, including SysML tools (e.g. MagicDraw) interested in integrating HSI with SE
- HSI experts interested in tool development, human performance modeling, and Systems Engineering methods