Authoring Tools for Intelligent Tutoring Systems

The Need:

Tools to streamline the development of ITS content

Intelligent tutoring systems (ITSs) hold the promise of dramatically decreasing the cost of training. ITSs provide consistent, formalized instruction with automated trainee-assessment tools. DoD adoption of ITS systems has been slow to materialize, most affected by the effort that goes into creating content. ITSs in many ways shift the costs of giving instruction to the costs of preparing instruction. Specifically:

- Most current ITSs are not compatible with DoD training
- ITS content is expensive and time-consuming to develop
- Current ITS authoring workflows do not support a robust tutoring capability

The Solution:

After performing an analysis of ITS systems to determine the primary factors impacting content development time, SoarTech and our partners at the Institute for Creative Technologies (ICT) designed a pair of authoring tools specifically aimed at alleviating them. These authoring tools include:

- An expert model authoring tool, Emma, used to graphically represent expert behavior within the ITS practice environment
- A domain model authoring tool, Diana, that allows content developers the ability to graphically compose non-trivial problem spaces and scenarios
- Using SoarTech’s Dynamic Tailoring technology, the outputs of these authoring tools can be used to automatically detect, diagnose, react and log student performance in real time

The Target:

Immersive Naval Officer Training System (INOTS)

The Immersive Naval Officer Training System (INOTS) is a blended learning environment that merges traditional classroom instruction with a mixed reality training setting. In an effort to provide a structured framework for teaching and practicing communication skills, INOTS includes a practice environment that replaces one human role-player with a life-sized virtual human. The virtual human addresses the issues inherent to live role-play practice sessions that cannot be easily standardized, tracked and assessed following the interaction.

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