Interactive Visual Modeling at LANL — Safeguards and Security Capabilities and Training Applications

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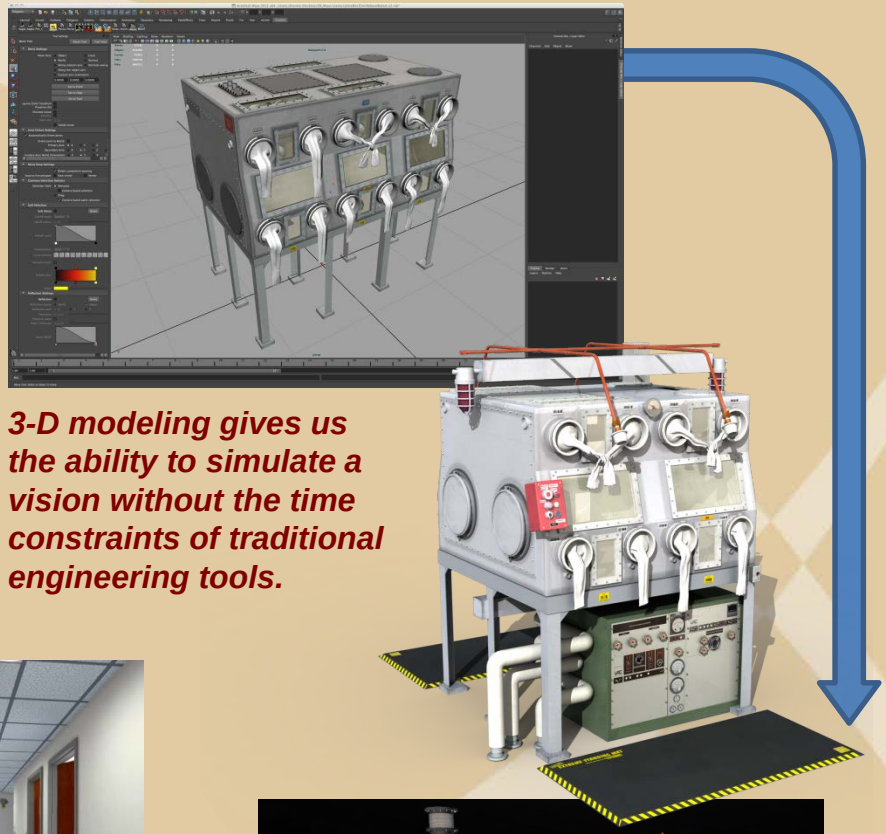
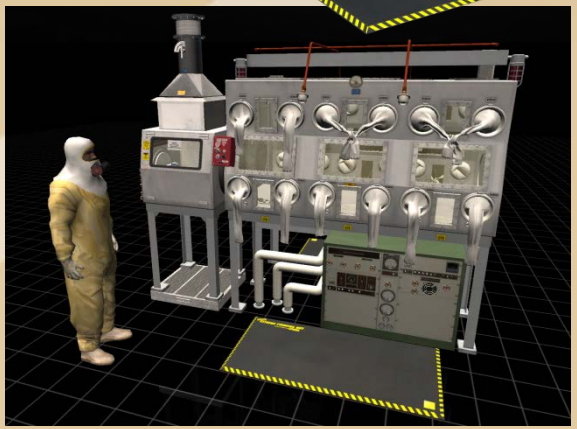
Description/Capabilities

- LANL develops interactive visual models in support of global security-related project and programs.
- Using virtual modeling to enhance the understanding of complex processes and automate critical procedure driven steps, LANL is augmenting real-world nuclear engineering scenarios and increasing available tools to which operators have access.
- Immersive three-dimensional models have changed the way training and nuclear facility operator aids are delivered and how projects and ideas become reality.
- Developed models are customized, license-free, and platform independent.
- The models are created using photos, engineering drawings, and subject matter expert knowledge, ensuring scientific accuracy.
- The implementation and integration are unique to nuclear facilities, and have multiple additional applications in treaty verification and nuclear safeguards context.



3-D modeling gives us the ability to simulate a vision without the time constraints of traditional engineering tools.



The Benefits of Virtual Facility Models

Interactive visual models can be used to access controlled areas, highly radioactive areas, and specialized training areas that generally require time and effort preparing paperwork to gain access, as well as overcoming the security hurdles to enter the facility. These facilities are prime examples for developing these models, as they allow sponsors and emergency response teams to become familiar with a facility without having to physically visit.

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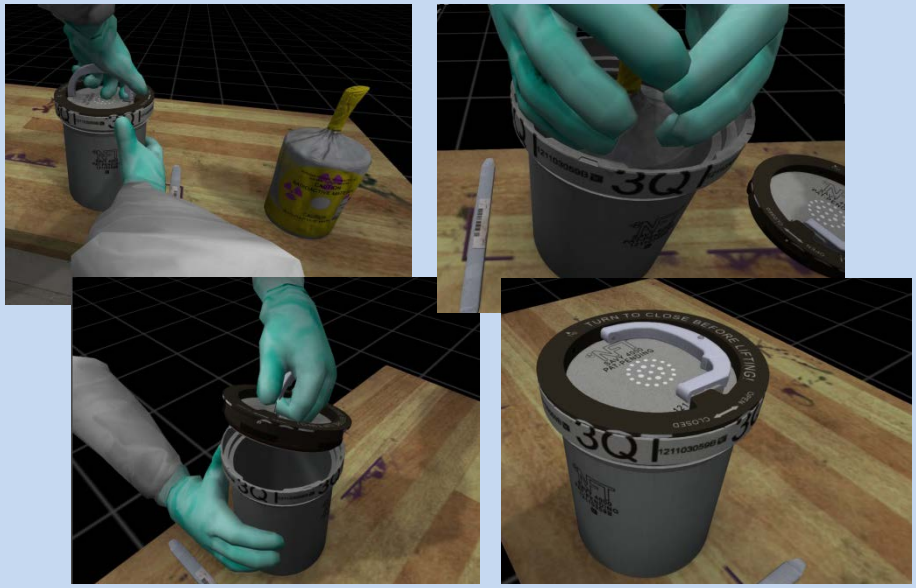
Training Applications

- The newest and fastest growing application for the modeling tool has been in training and testing simulations.
- Training procedures can be incorporated and provide users with step-by-step visual aids as preparation for training or real-life activities.
- By incorporating procedures, we begin to bridge the gap between the training materials and traditional on-the-job training.
- The model can also be created to test the users on correct steps. If users make a wrong scenario decision, the model will not allow them to move forward.
- This process forces users to interact with the procedures, while seeing the desired result and ultimately learning the correct process.
- Supervisors can also receive notice as to when and how often employees interact with the model, thus giving the supervisor a greater sense of confidence in the workers' understanding of training plans.



Through the development of a user-friendly interface, LANL 3-D training tools reach a new set of users not familiar with interactive virtual reality.

Virtual model of a Los Alamos training facility

3-D Modeling Strengths

- *Virtual Scientific Data Immersion and Visualization*
- *Conceptualized Design*
- *UET (Use-Every-Time) Procedures*
- *Process Troubleshooting/Diagnostic*
- *Physical Space Optimization*
- *Interactive Procedures*
- *Scenario Driven Testing Training*

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