# VM*tron*™ - Virtual Maintenance Trainers

Highly dynamic, complex systems such as military and civilian aircraft, weapons systems, electronic equipment and industrial machinery often require an advanced level of training that can be difficult to accomplish effectively with traditional Computer Based Training (CBT) systems. Static graphics, textual descriptions and video clips are merely the electronic equivalent of a paper textbook. No matter how well-organized and presented, this type of content is ultimately less effective and has lower retention than hands-on interactive training. Ideally, the student in any learning environment should be provided the most realistic, tactile experience available. Virtual reality and simulation provides the next best training experience to actual hands-on equipment use.

KaTron's VM*tron*™, the next generation Virtual Maintenance Trainer, implements virtual reality and simulation technologies to provide highly engaging and effective maintenance training for complex systems, machinery and equipment without having to access operational platforms and original systems. Key to this concept is the rapid creation of 3D virtual equipment and models necessary to build high fidelity maintenance training simulations. VM*tron*™ is an extremely deployable and interactive solution for installation, maintenance and repair training of equipment, systems and platforms, which ensures first-time-right performance, resulting in superior operational readiness at lower cost.

VM*tron*™ offers a solution that provides students with unlimited virtual hands-on practice time. Used either on its own as a part of distributed learning, or blended with instructor-led live equipment training, it enables trainees to meet their learning objectives more effectively and cost-efficiently. VM*tron*™ can be used in a wide range of training scenarios, from pre-course familiarization where students can train at home before a course begins, to on-the-job training aids where trainers can deliver critical training to address knowledge shortages in the field.
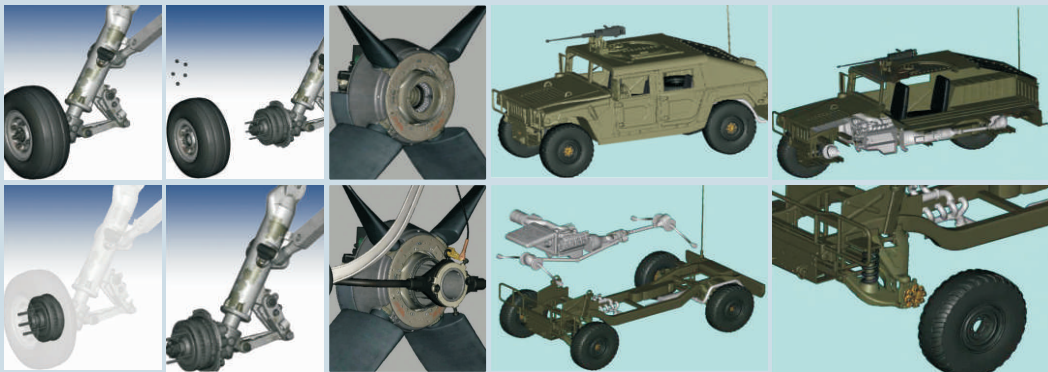
Learning Objective	Method	With VM*tron*™ Students can
To familiarize students with equipment	Virtual Hands-On Exploration	Interact with 3D objects, including disassembling, assembling, rotating, moving, cross-sectioning, X-raying and zooming
To train students on procedures	Skill Acquisition	Watch 3D procedural animations that induce text and audio and show how to perform a procedure
To enable students practice the procedures	Guided Practice	Implement operation, maintenance, and repair procedures by performing them on a virtual model of the equipment, receiving real-time feedback on mistakes and successes

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VM*tron*™ is an "extremely deployable" solution, as it is optimized for web deployment retaining full characteristics of a real-time simulation. The content can be shared and reused across a number of different application domains such as design review, embedded software development, training, and technical documentation.

VM*tron*™ is also an "extremely interactive" solution, as it uniquely allows real-time assembly and disassembly of the 3D equipment, improving the learning experience and the results. VM*tron*™ has been developed to support the four phases, typically covered in task-based technical training:

✚ Familiarize - Interact and familiarize with virtual 3D equipment, system or platform and quickly identify all parts and components
✚ Acquire - Watch procedural animations created by subject matter experts that demonstrate the correct ways to maintain the equipment, system or platform
✚ Practice - Virtual hands-on practice allows students to learn at their own pace and receive immediate feedback on their performance
✚ Validate - Interactions can be tracked by SCORM (Shareable Content Object Reference Module) conformant Learning Management Systems

By using VM*tron*™ Virtual Maintenance Trainers for installation, maintenance, and repair trainings, any organization that is responsible for the training or maintenance of complicated equipment, systems or platforms will be able to:

✚ Train to standard in 60% of the time
✚ Improve maintenance turn time by at least 30%

According to independent assesments, this impressive improvement leads to a significant short and long-term Return on Investment (ROI) through a successful VM*tron*™ implementation.