



# ALION SCIENCE AND TECHNOLOGY

(FORMERLY CARMEL APPLIED TECHNOLOGIES, INC.- CATI)

## VIRTUAL FLIGHT DECK TRAINING SYSTEM

LSE Directs H60 to safe landing

### About the Technology

The Landing Signal Enlisted (LSE) is the person responsible for directing Navy pilots landing helicopters aboard ships. It is paramount that the LSE be aware of, and able to coordinate and communicate any situational awareness on deck and in the air, to avoid jeopardizing the safety of the pilot, crew and personnel shipboard. However, the average LSE trainee receives less than sixty seconds of live interaction with a helicopter during training. The time the LSE spends training is largely limited to learning the operations and procedures for guiding helicopter landings. The actual practice of guiding helicopter landings and learning how to respond to emergencies on the ship must be learned on the job in real situations.

Alion Science and Technology (Alion) CATI Operation developed the Virtual Flight Deck Training System (VFDTs) that immerses LSE trainees in a 3D environment aboard a virtual ship. The VFDTs uses a head-mounted display along with Alion-CATI's X-IG image generator to submerge trainees in a virtual environment. The LSE student uses hand signals to direct realistic, simulated helicopters onto a virtual flight deck. The Naval Air Systems Command for Aviation Training Systems has acquired the training simulation system for all four Navy Landing Signalman Enlisted Schools, in support of the mandatory curriculum for all LSE personnel. The virtual training system allows the students to use standardized Navy hand signals to direct the helicopter as it approaches, lands, or prepares for departure, from a "virtual flight deck." The VFDTs uses a combination of seven Navy ships and seven different helicopters 3D models to allow trainees to gain experience in operations, such as vertical replenishment, before completing their classroom training and train on the flight deck along side a certified LSE.

### Military and Commercial Significance

The operating cost to train LSE students in actual helicopters is over \$12,000 an hour. The ability to train students in classrooms with VFDTs is safer, offers more flexibility, a variety of situations, and is less costly overall than training LSE on the shipboard of real aircrafts. The virtual training system can be modified to meet similar military, civilian, and commercial training applications.

### APPLICATIONS

- Naval Aviation Systems Command
- Helicopter Sea Combat Squadron
- Helicopter Anti-Submarine Squadron

### About the Company

Alion Science and Technology (Alion) purchased Carmel Applied Technologies, Inc. (CATI) in February 2005. Alion is an employee-owned technology solutions company that delivers technical expertise and operational support to the Department of Defense, government agencies, and commercial customers. Building on almost 70 years of R&D and engineering experience, Alion brings innovation and insight to multiple business areas, including defense operations, modeling and simulation, wireless communication, industrial technology, as well as chemical, biological, nuclear, and marine engineering.

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SBIR Investment: \$1.4M  
Project Revenue: \$1.52M

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