

NAVY Transition Assistance Program

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N07-042 - Continuum Dynamics, Inc.

High Fidelity, Real-Time, Rotor Wake Module with Shipboard Interactions

NEED & CUSTOMER REQUIREMENT

Need: Current rotary-wing aircraft flight simulations and trainers use low-order models for the induced velocity that require empirical adjustments to capture interactions in the shipboard landing and other complex environments.

Value to the Warfighter: Simulation-based training provides a cost effective and safe means to perform mission rehearsal and edge-of-the-envelope maneuvering.

Operational Gap: Current modeling approaches require experimental data to provide high-fidelity, real-time simulation tools, which are not always available and difficult to obtain in certain flight environments.

Customer Specifications: Physics-based software modules are needed that model the rotorcraft inflow environment, including the effects of moving ground planes and ship airwake effects, and that can be integrated with Navy rotary-wing flight simulators.

Technology Description: The CDI real-time free-vortex physics based wake model with shipboard interactions provides a physics-based solution to enhance rotorcraft simulations for training across the flight envelope and in helicopter-ship operations.

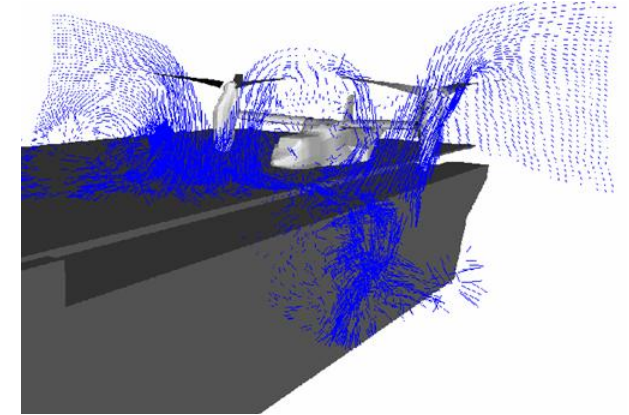
SPONSORSHIP of original SBIR/STTR Topic

SYSCOM: NAVAIR

Transition Target: PMA-205 Naval Aviation Training Systems

Original Sponsoring Program: PMA-205 Naval Aviation Training Systems

TPOC Phone Number: (301) 342-3733



TECHNOLOGY DEVELOPMENT MILESTONES (SBIR/STTR)

Milestone	TRL	Risk	Measure of Success	TRL Date
Prototype software with shipboard interactions	4	Moderate	Validated inflow model with prototype ship airwake interaction model	9/2009
Integration with helicopter trainer	5	Moderate	Prototype software module integrated with Navy simulation	12/2009
Pilot simulation evaluations	5	Moderate	Module validation including pilot evaluation	6/2010
Final software module completed and validated	6	Moderate	Final module with validated shipboard interactions models	9/2010

Open contract: N68335-08-C-0409 ending 9/2010

TECHNOLOGY TRANSITION OPPORTUNITIES (PHASE III)

Other Potential Applications:

"Urban Canyon" rotorcraft operations and training

Business Model:

Software modules under development will be targeted for simulation integrators like Flight Safety International and CAE USA as "plug-in" products offered through current software distribution channels. CDI would support Phase III commercialization activities by performing installation, support, and testing at appropriate Navy locations (i.e., NAVAIR MFS)

Objective:

Seeking partner for demonstrating real-time wake module with shipboard interactions in commercial rotorcraft trainer.