



Integrated Digital Engineering Environment for PPE Development (IDEEP)

Innovision, LLC.

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IDEEP is a next-generation digital engineering platform that revolutionizes the design, testing, and optimization of Personal Protective Equipment (PPE). Developed under a Navy STTR Phase II contract (N22A-T017), IDEEP integrates human digital twins, advanced modeling and simulation, and AI-driven design intelligence into a unified environment to accelerate development and enhance protection, fit, and comfort for the warfighter.

Key Features & Benefits

Integrated Digital Workflow

- End-to-end environment covering initial design → virtual prototyping → testing → optimization → certification.
- Modular architecture allows users to run complete workflows or standalone modules.

Human Digital Twin Integration

- Incorporates detailed and simplified HDTs (e.g., THUMS, VIVA+, DACAA) for realistic biomechanical response prediction.
- Simulates PPE interaction with the human body for fit, comfort, and injury protection.

AI-Enhanced Design Intelligence

- Embeds Deep Knowledge Center for Injury Biomechanics (De-KCIB) and ComFit Copilot for AI-assisted design and decision support.
- Enables multi-criteria optimization using machine-learning-based surrogate models and decision-making algorithms.

Helmet & Body Armor Subsystems

- Specialized subsystems for helmet and body armor development, integrating CAD/CAE models, materials data, and performance metrics.
- Supports virtual testing of blast, ballistic, and ergonomic performance.

Generative & Interoperable Design

- Built on open standards with APIs to integrate with CAD, CAE, and simulation tools.
- Compatible with Windows and Linux systems; designed for DoD digital ecosystems.

Secure, Extensible Platform

- Fully compliant with DoD cybersecurity standards.
- Customizable modules allow users to extend IDEEP for new PPE types or human-system applications.

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