August 5, 2025

Internal Innovations

Advanced Concepts Engineering

Internal Research And Development Team Efforts

GENERAL DYNAMICS
Bath Iron Works

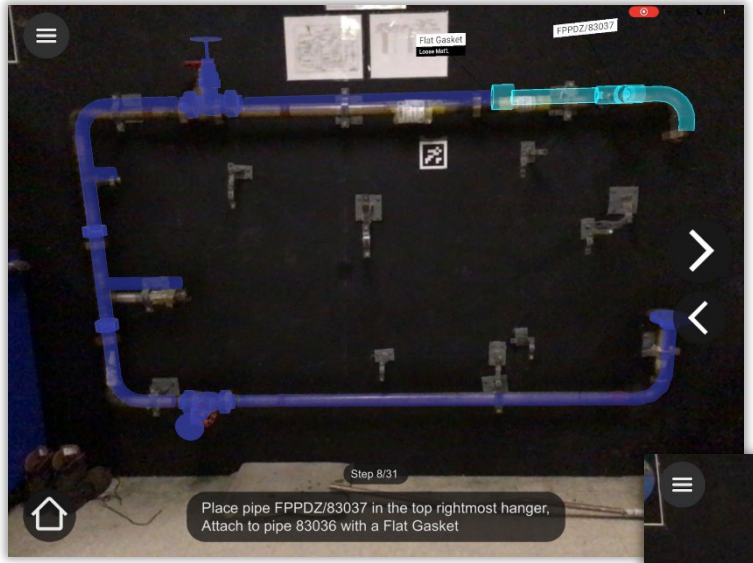
Training the Shipbuilders of the Future

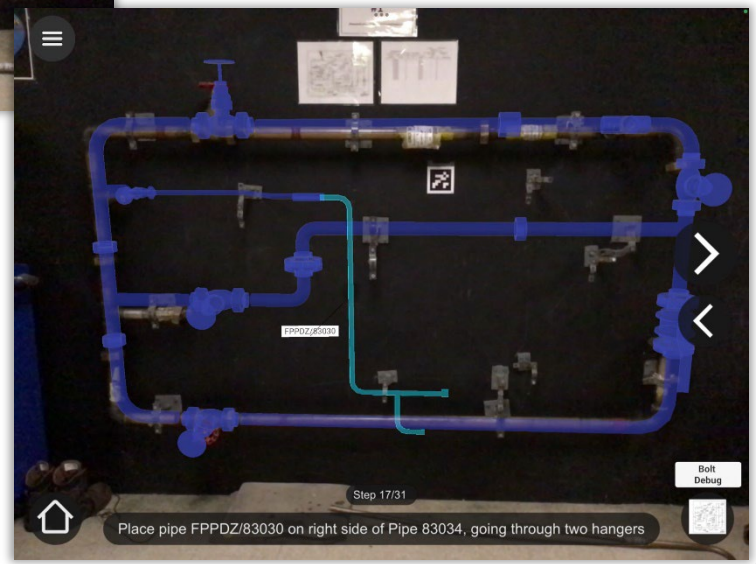
Accelerate up the proficiency curve

Meet them on their level

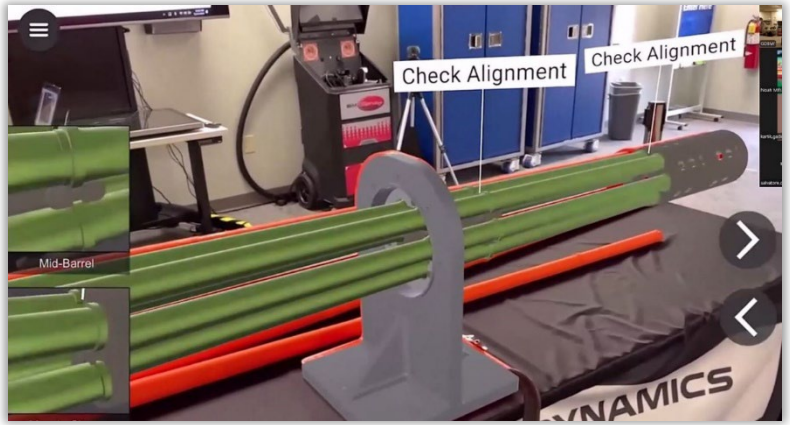
Blends virtual and physical resources

Outside-In vs. Inside-Out





Virtualized pipe overlaid on training mock using ScopeAR running on iPad



New mechanics learn to assemble CIWS barrel assembly with 3D printed mock and augmented reality

Accessible 3D Printing for High ROI Impact to S-Q-S-C-P

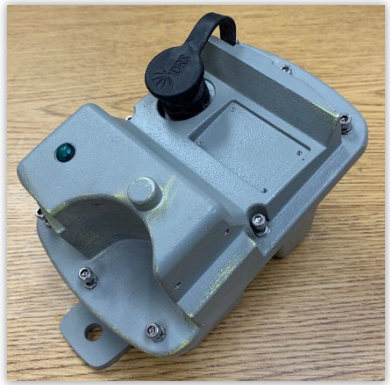
Lock-Out Tag-Out Safety

Configuration managed Jigs & Fixtures

Lightweight Mocks & Templates

Personalized awards and swag

Fragility vs. Rapidity



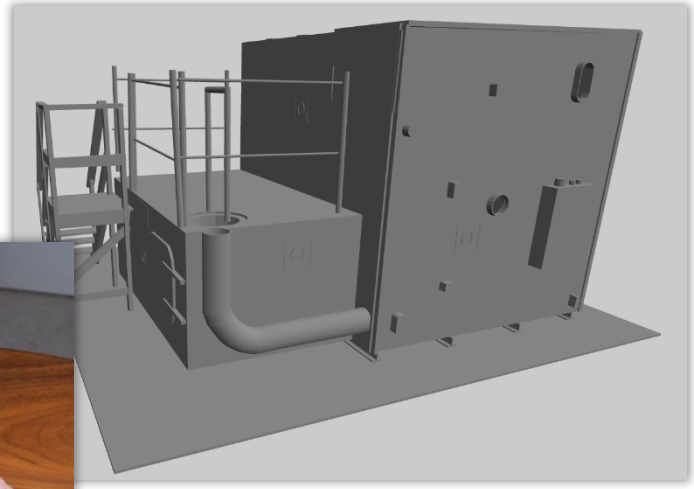
Scan-to-CAD Comparison in the Field

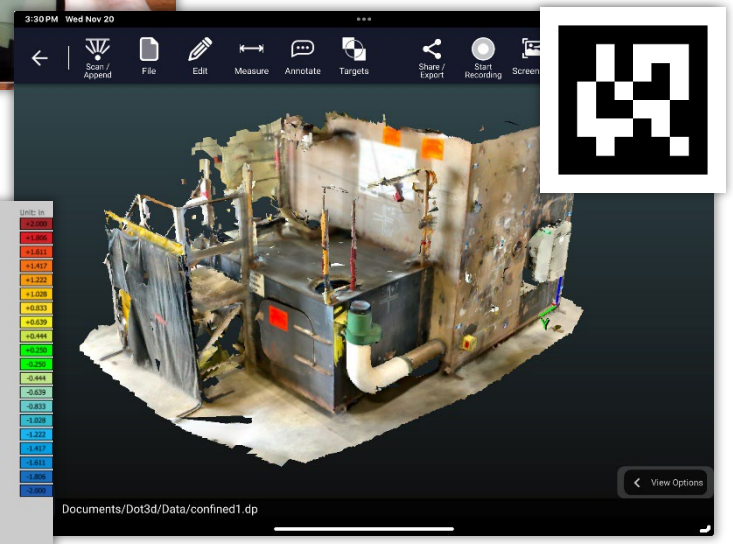
What's better than one tape measure?

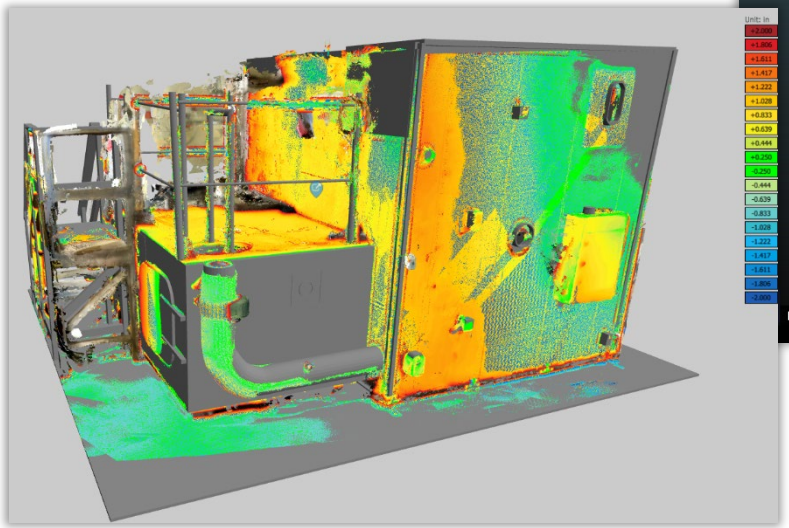
Future sight from the first deckplate

Trackers vs. Targets

Preparing space-specific models







Confined Space training mock scanned with iPad Pro compared to model in Dot3D app

Lean Plate Forming with Real-Time Feedback

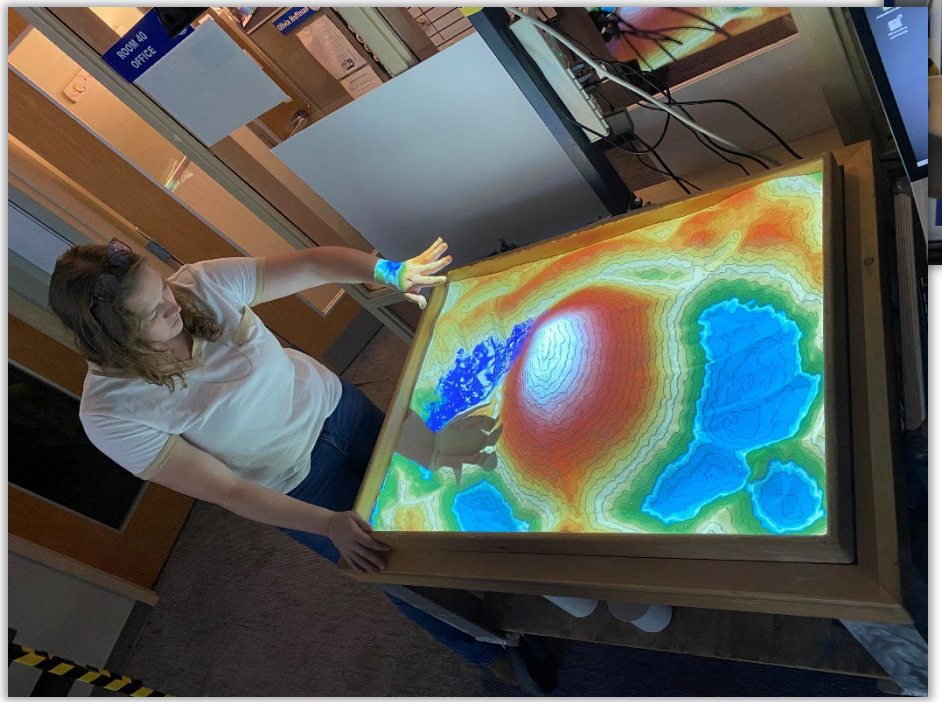
As much art as science

Reduce material handling for checking

Real-time visual feedback

3D calibration & tracking

Cold forming plates on a
Nieland 1,000 Ton press
(Photo Courtesy of Nieland)



AR Sandbox originally developed by
University of California - Davis utilizing Linux software and
Microsoft Xbox 360 Kinect (Gen1)

Thank You

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