NAVAIR Potential 22.1/A Topics
Topic Workshop

7 Dec 2021

Presented to: National Defense Industrial Association

Presented by: Tony Archer, Tony Brescia

NAVAIR's Role in Naval Aviation

- Develop, acquire and support aircraft, weapons and related systems which can be operated and sustained at sea
- Provide analysis and decision support for cost / schedule / performance trades and investment decisions
- Increase Navy and Marine Corps capability, readiness and affordability in a joint / coalition environment

Our capabilities support the unique mission of naval aviation

NAVAIR Products

Fixed Wing

Rotorcraft

Unmanned Air Systems

Weapons

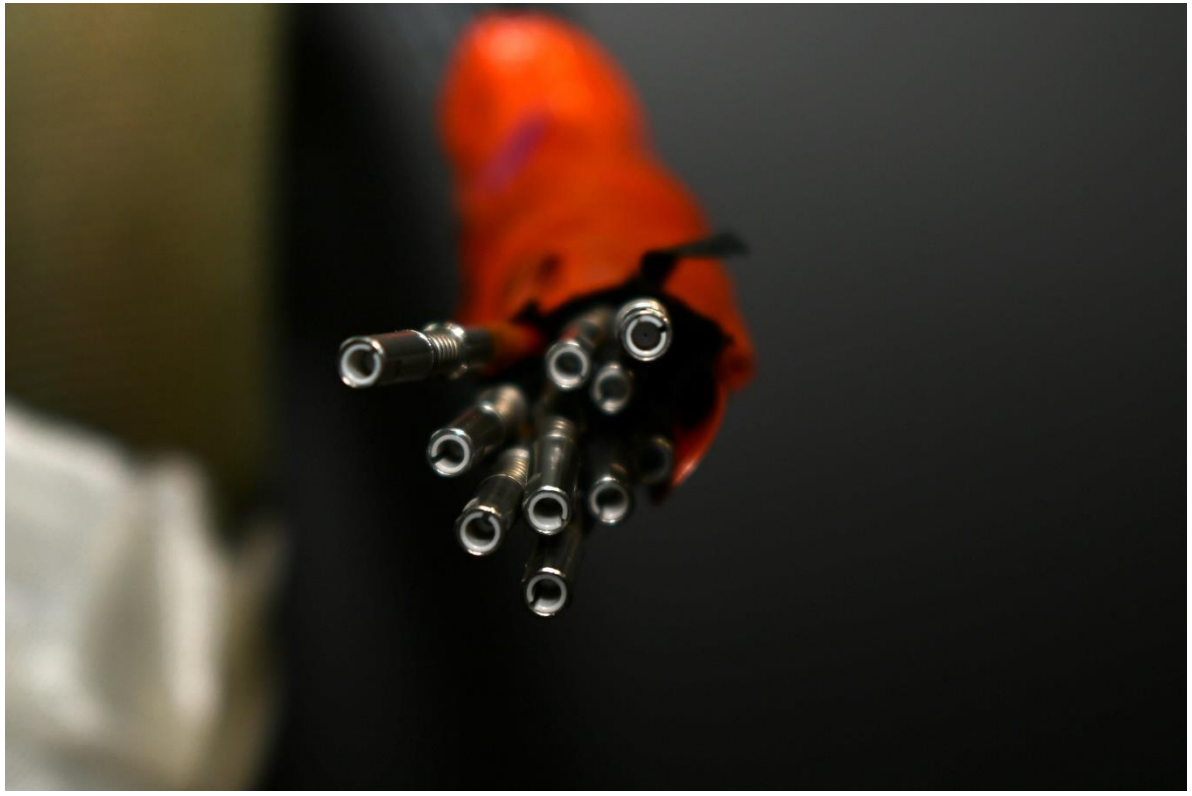
Aviation Systems

Anthony Brescia

S&T Director – Avionics Engineering

NAWCAD

N221-005



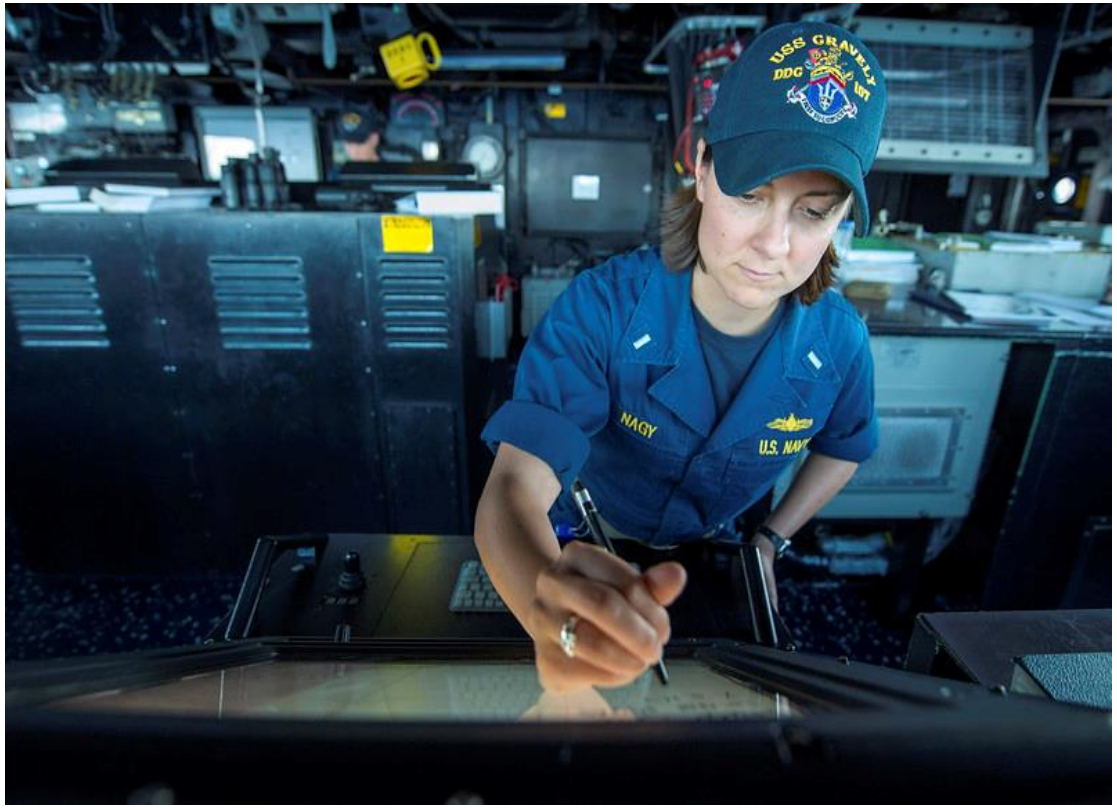
Source: Navy.mil

Topic Title: DIGITAL ENGINEERING - Photonics Integration for Modular Open Systems Approach Avionics Plug-in Modules

Objective: Develop photonic plug-in module technology and a modeling approach for designing and packaging air platform digital and analog optical communication avionics.

Endorsing PMAs: PMA-265

N221-018



Source: Navy.mil

Topic Title: Smart Avionics Systems Environment for Automatic Test Systems

Objective: Identify, characterize, and standardize the use of smart avionics systems' data-driven capabilities. Leverage Units Under Test (UUTs) health, environment, and performance data collection capabilities of these systems. Develop innovative technologies to streamline adoption of condition-based and predictive maintenance techniques in Test Program Sets (TPSs).

Endorsing PMAs: PMA-262

N221-011

Source: Navy.mil

Topic Title: Low-Cost, Large, Multidimensional, High-Sensor-Density, Collapsible Arrays

Objective: Develop large, multidimensional, high-sensor-density, collapsible arrays compatible with A-size sonobuoy dimensions and applications.

Endorsing PMAs: PMA-264

N221-023

Source: Navy.mil

Topic Title: Miniaturized Sonobuoy High-Data-Rate Tether

Objective: Develop innovative miniaturized data tether deployment modules for use in a variety of sonobuoys for antisubmarine warfare (ASW).

Endorsing PMAs: PMA-264

N221-010

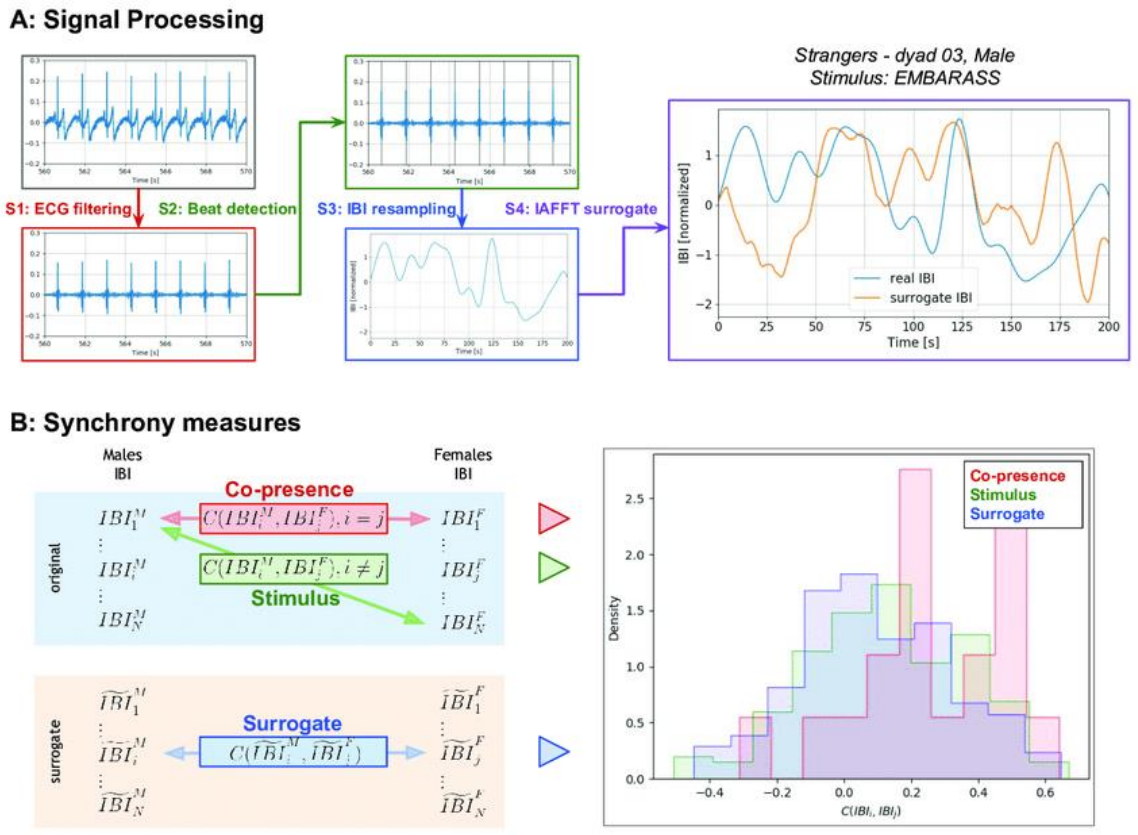
Source: Navy.mil

Topic Title: Magnetometer Classification of Underwater Objects

Objective: Design and develop a system using existing sensors and real-time signal-processing algorithms for classification of underwater objects.

Endorsing PMAs: PMA-299

N221-D04



Source: https://www.researchgate.net/figure/Data-analysis-A-Pipeline-for-the-processing-of-the-electrocardiogram-ECG-signal-with_fig1_338124599

Topic Title: DIRECT TO PHASE II – Cognitively Inspired Artificial Intelligence for Automated Detection, Classification, and Characterization

Objective: Develop a human-level/human-style artificial intelligence (AI) that can perceive and explain signals implicit in magnetics, electro-optical and infrared (EO/IR), and acoustics data to achieve long-range detection, tracking, and classification of maritime surface and subsurface contacts, which is an essential and imperative Naval capability.

Endorsing PMAs: PMA-290

Anthony Archer
Portfolio Manager – SBIR/STTR
NAVAIR

N221-004

Source: NAVAIR Navy.mil

Topic Title: DIGITAL ENGINEERING - Embedded Aircraft Design Geometry in Multidisciplinary Design Optimization Frameworks

Objective: Develop and demonstrate a conceptual design geometry tool capable of embedding in fixed- and rotary-wing multidisciplinary optimization frameworks to enable improved estimates of cost and technical feasibility during requirements development and concept refinement of new manned aircraft, unmanned aircraft systems, and weapons.

Endorsing PMAs: PMA-231

N221-008

Source: Navy.mil

Topic Title: Innovative Approaches to Reducing the Complexity and Increasing Sustainability of Linkless Ammunition Loading System III

Objective: Identify and demonstrate system innovative approaches to the Linkless Ammunition Loading System III (LALS III) to increase the system's reliability and availability.

Endorsing PMAs: PMA-242

N221-012

Source: Navy.mil

Topic Title: Advanced Jam-Resistant Radar Waveforms

Objective: Develop radar waveform design approaches that are robust in the presence of barrage noise and deceptive jamming techniques.

Endorsing PMAs: PMA-299

N221-014

Source: Navy.mil

Topic Title: Synthetic Aperture Radar High Resolution Imaging when Performing Random Nonrepeating Radar Orbits

Objective: Develop innovative Synthetic Aperture Radar (SAR) image formation/detections techniques for aerial vehicles performing Coherent Change Detection (CCD) that permits randomized radar orbits.

Endorsing PMAs: PMA-263

N221-016

Source: Navy.mil

Topic Title: Autonomous Onboard Processing Hostile Fire Sensor System

Objective: Develop and deliver chip-scale multifunction midwave infrared (MWIR) metasurface optics sensor system for detecting and geolocating hostile fire to be mounted on, or installed within, small battery operated Group 1 unmanned air vehicles (UAV) and self-guiding target munitions.

Endorsing PMAs: PMA-263

N221-017

Source: Navy.mil

Topic Title: Manned-Unmanned Teaming Survival in an Adaptive World

Objective: Develop and demonstrate an innovative, mission effective Unmanned Air Vehicle (UAV) capability to assist manned-unmanned teaming (MUM-T) to challenge and/or negate radars and radar networks by enabling UAVs to automatically sense and communicate weaknesses in a radar and/or radar networks.

Endorsing PMAs: PMA-263

N221-024

Source: Navy.mil

Topic Title: Automated Air Traffic Control Communication Technology Enhancement

Objective: Provide an intelligent, realistic, and autonomous communications software tool intended to provide relevant radio and chat information exchanges within training systems and feedback to improve the fidelity and quality of communication-based training.

Endorsing PMAs: PMA-205

N22A-T001

Source: eglin.af.mil

Topic Title: Visual Display Design for Mitigation of Helicopter and Tiltrotor Brownout Spatial Disorientation

Objective: Design, build, and demonstrate a vertical lift platform (i.e., helicopter or tiltrotor) cockpit visual display that mitigates spatial disorientation during brownout landings and takeoffs. The display must be compatible with DoD vertical lift/aircrew systems currently in use.

Endorsing PMAs: PMA-276

N22A-T005

Source: Navy.mil

Topic Title: Spatial Disorientation Assessment and Evaluation Tool

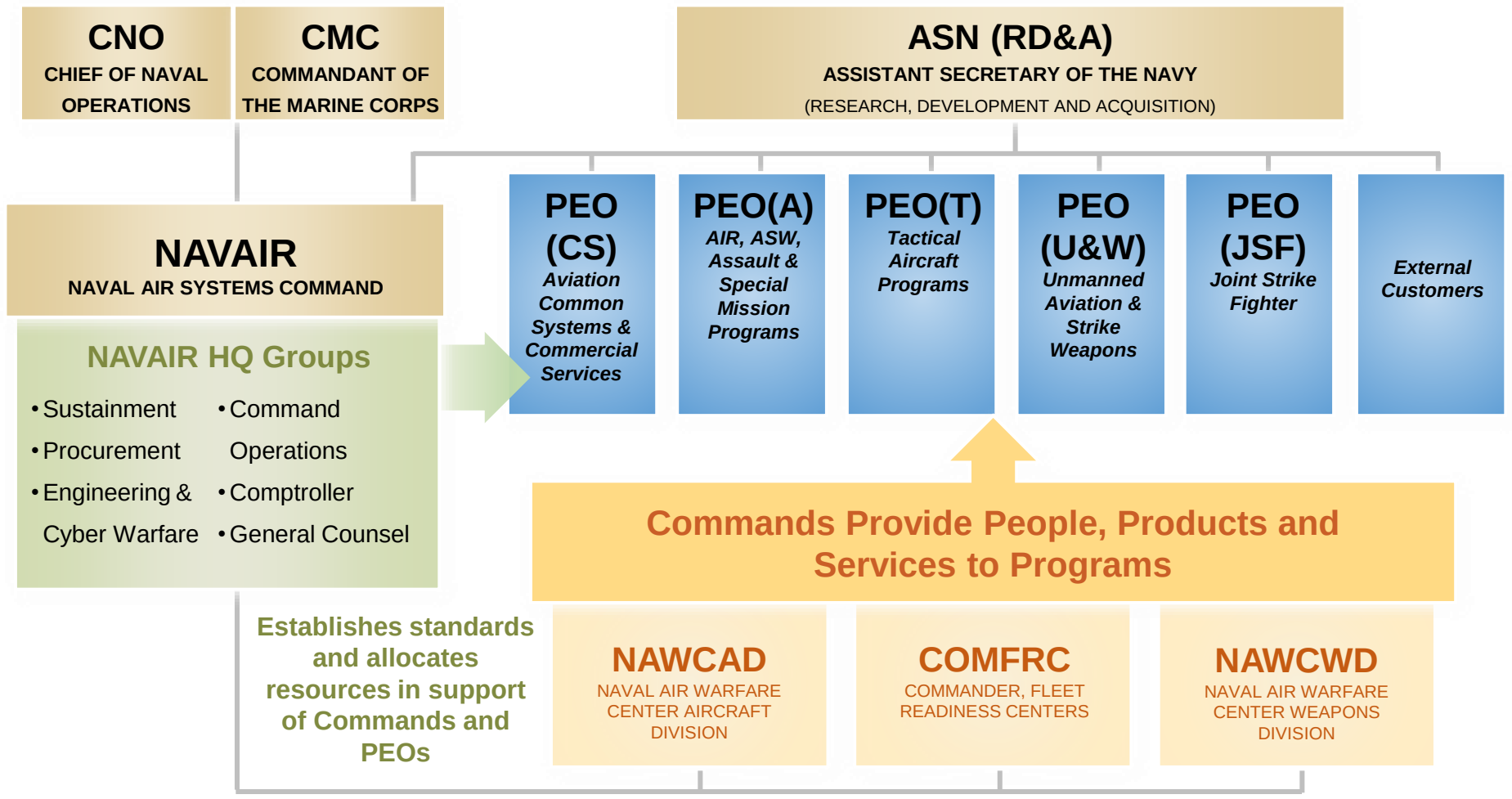
Objective: Develop and validate a survey-based assessment tool aimed at measuring perceptions regarding the experience and severity of a spatial disorientation-related illusion, as well as to evaluate the effectiveness of knowledge/skill acquisition and attitudinal changes from spatial disorientation training protocols.

Endorsing PMAs: PMA-205

Questions?

Backup Slides

Operating Construct



PEO(T) Programs

PMW/A-101
Multifunctional Information Distribution System

PMA-231
E-2 / C-2

PMA-234
Airborne Electronic Attack Systems & EA-6B Prowler

PMA-251
Aircraft Launch and Recovery Equipment

PMA-257
AV-8B Harrier

PMA-259
Air-to-Air Missile Systems

PMA-272
Advanced Tactical Aircraft Protection Systems

PMA-265
F/A-18 / EA-18G

PMA-298
Air Warfare Mission Area

PMA-213
Naval Air Traffic Management Systems

PMA-273
Naval Undergraduate Flight Training Systems











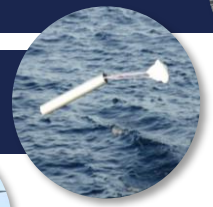
PROGRAM EXECUTIVE OFFICE TACTICAL AIRCRAFT PROGRAMS

NAVAIR

PEO(A) Programs

PMA-261
Heavy Lift Helicopters

PMA-264
Air ASW Systems



PMA-275
V-22 Osprey

PMA-276
Light / Attack Helicopters

PMA-299
Multi-Mission Helicopters

PMA-290
Maritime Patrol & Reconnaissance Aircraft

PMA-271
Airborne Strategic Command, Control & Communications

PMA-207
Commercial Transport & Support

PMA-274
Presidential / Executive Lift Helicopters

NAVAIR

PEO(U&W) Programs

PMA-281
Strike Planning and Execution Systems

PMA-201
Precision Strike Weapons

PMA-263
Small Tactical UAS

PMA-208
Navy Aerial Targets and Decoys

PMA-262
Persistent Maritime UAS

PMA-242
Direct and Time Sensitive Strike

PMA-266
Multi-Mission Tactical UAS

PMA-268
Unmanned Carrier Aviation

PMA-280
Tomahawk Weapons System

PEO(CS) Programs

PMA-260
Aviation Support Equipment

PMA-226
Specialized and Proven Aircraft

PMA-209
Air Combat Electronics

PMA-205
Aviation Training Systems

PMA-202
Aircrew Systems

PEO(JSF)

Mission

The Joint Strike Fighter (JSF) Program is the Department of Defense's focal point for defining affordable next generation strike aircraft weapon systems for the Navy, Air Force, Marines, and our allies. The focus of the program is affordability -- reducing the development cost, production cost, and cost of ownership of the JSF family of aircraft

Survivable Against World's Most Sophisticated Threats Now and in the Future

Critical to US and Allied Air Dominance for the Next 50 Years

NAVAIR