Aircraft Survivability Future Capabilities

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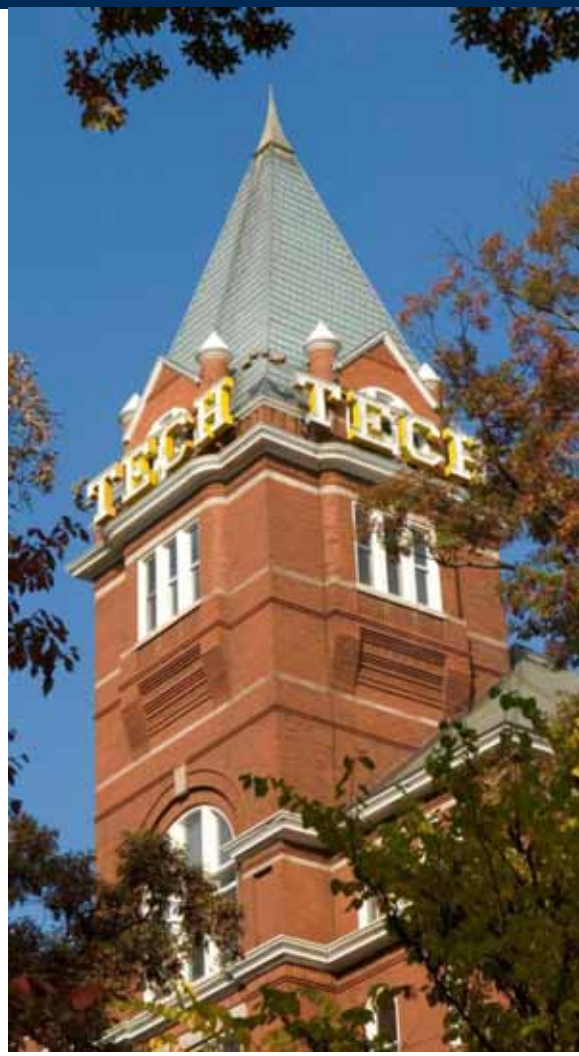


GTRI UARC

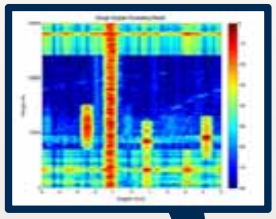
- GTRI was designated in 1995 as a **University Affiliated Research Center** (UARC) by the Director of Defense Research and Engineering (DDR&E), Office of the Secretary of Defense (OSD) in order to maintain a long-term strategic relationship with DoD.

- GTRI Competencies
  1) Electromagnetics, Materials and Device Technology
  2) Analysis, Modeling and Simulation, Systems Engineering and Technology Development
  3) Threat Systems Research & Development
  4) Sensors, Weapons, Electronic Warfare and Autonomous Systems
  5) Cyber Security, Information, Communication, Command and Control and Software Systems
  6) Test & Evaluation

- US Army is our Primary Sponsor.

GTRI Spectrum of EW Capabilities

Threat Projection & Assessment



Modeling, Simulation & Analysis

Technology Assessment & Test

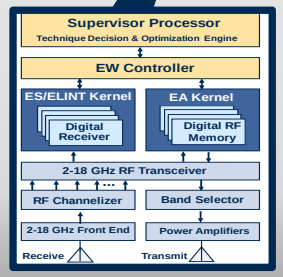
New System Acquisition Support

T&E Threat Simulation Development

Tactics & Training

Advanced Concept Development

Advanced Technology Development



Rapid Prototyping & Fielding

System Sustainment & Modernization

Developmental T&E, Operational T&E

Future Aircraft Survivability Technologies for Rotary Wing

EO / IR Threat Warning

- Modeling and Simulation for a variety of threat scenarios including EO and Laser sensing

Expendables

- Expendable effectiveness analysis using advanced modeling and simulation tools

RF Countermeasures

- Analysis of current and future RF threats to Army Aviation platforms & countermeasures against these threats

GTRI-Supported Open Architecture Initiatives

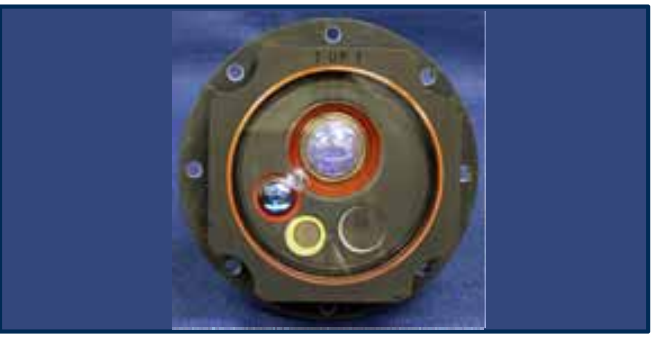
The FACE Technical Standard is an open avionics standard intended to facilitate development of systems which are more robust, interoperable, portable, and secure

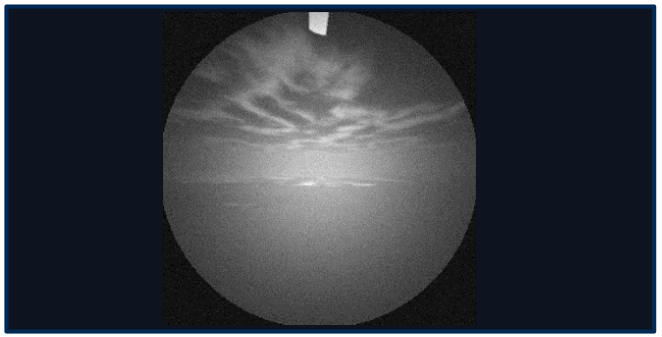
The Hardware Open Systems Technology standard is a hardware technical reference framework engineered specifically for portability and scalability across a wide array of platforms

Functional Architecture for Strategic Reuse is a decomposition of platform capabilities into lower-level, common functional modules which can be used across multiple platforms

Vehicular Integration for C4ISR/EW Interoperability is a reference framework of architecture, standards, and designs in support of ground platforms

Future Opportunities for Situational Awareness Integration

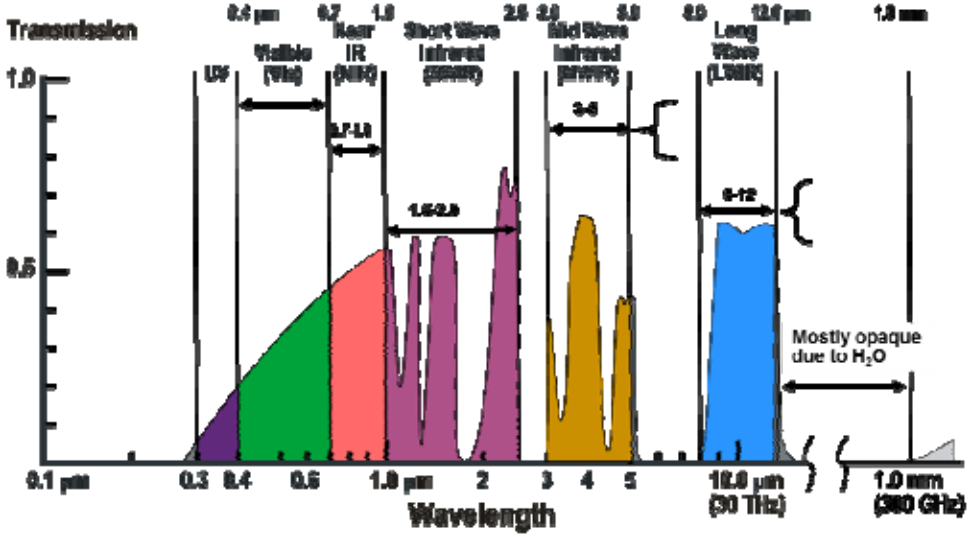




ASE

Mid-Wave Missile Warning
- Full-coverage stitched 2 color IR images
- Day/night operation
- Potential collision avoidance and obstacle detection
- Passive ranging

Active IRCM
- Tasking to augment MWR imaging capability



DVE Mitigation

LIDAR
- High-resolution real-time point clouds
- Problems w/dust and obscurants

MMW Radar
- Object detection and ranging
- Potential all-weather capability
- Moderate dust/obscurant penetration

LWIR
- Dust/obscurant penetration for some objects

EW Training Systems - Virtual Electronic Combat Training System (VECTS)

VECTS First Flight in 2004 on C-130
VECTS Second Flight in 2005 on MH-53

- Train Anywhere Anytime
- Augmented Range Training
- Home Station Training

'Train How You Fight and Fight How You Train'