S&T Campaign: Human Sciences
Training
Training Applications

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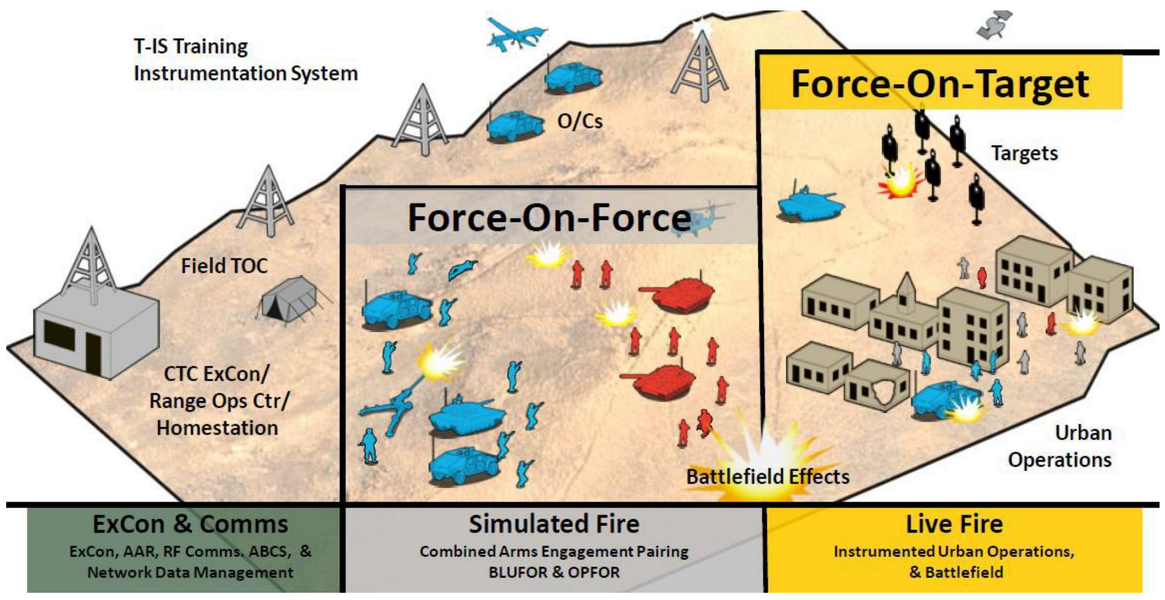
Research Objective

- **Simulating weapon-target engagements across all weapon systems and operational-like environments (i.e. Battlefield Realism) to allow training and assessment of individual and collective tasks during force-on-force operations.**



The research objective primarily focuses on live Force-on-Force training (center). However, it should also support and improve, if possible, all three areas of live training.

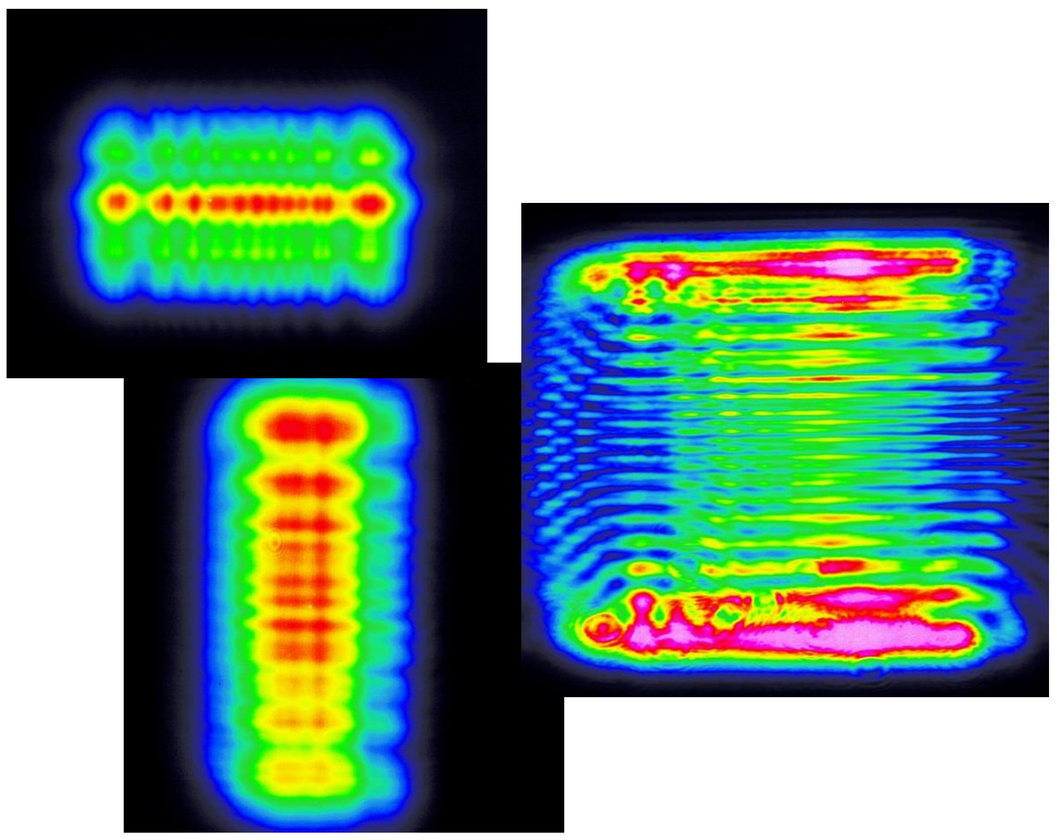
Challenges

- **Development of subsystems and components such as next generation lasers and detectors, 3D high resolution digital terrain, position/location/ GPS for GPS denied areas, latency and bandwidth improvement for live domain needs (real time data, accuracy, extended distances)**

A prototype Small Arms training device integrates a number of new and leading edge technologies to provide realistic weapon affects during simulated Force-on-Force engagements.

ARL Facilities and Capabilities Available to Support Collaborative Research

- **University of Central Florida (UCF) Center for Research and Education in Optics and Lasers (CREOL) partnership provides access to top subject matters experts and first class facilities**
- **Labs in Orlando and at Kennedy Space Center for Atmospheric Propagation M&S and PNT system evaluation**
- **1 km Instrumented Outdoor Range setup can measure atmospheric effects at the source and downrange**



Sample near-field beam profiles from three lasers being modeled for various training applications through a joint effort with ARL, UCF CREOL, and industry partners.

Complementary Expertise / Facilities / Capabilities Sought in Collaboration

- **Subject matter expertise in area of position, navigation, and timing**
- **Chip-scale MEMS for GPS denied navigation**
- **Facilities to package and measure emerging lithographic Oxide free Vertical cavity surface emitting laser (VCSEL) Arrays performance**
- **Oxide Free VCSELs laser for use in laser pumping of chip scale atomic clocks and sensor development**