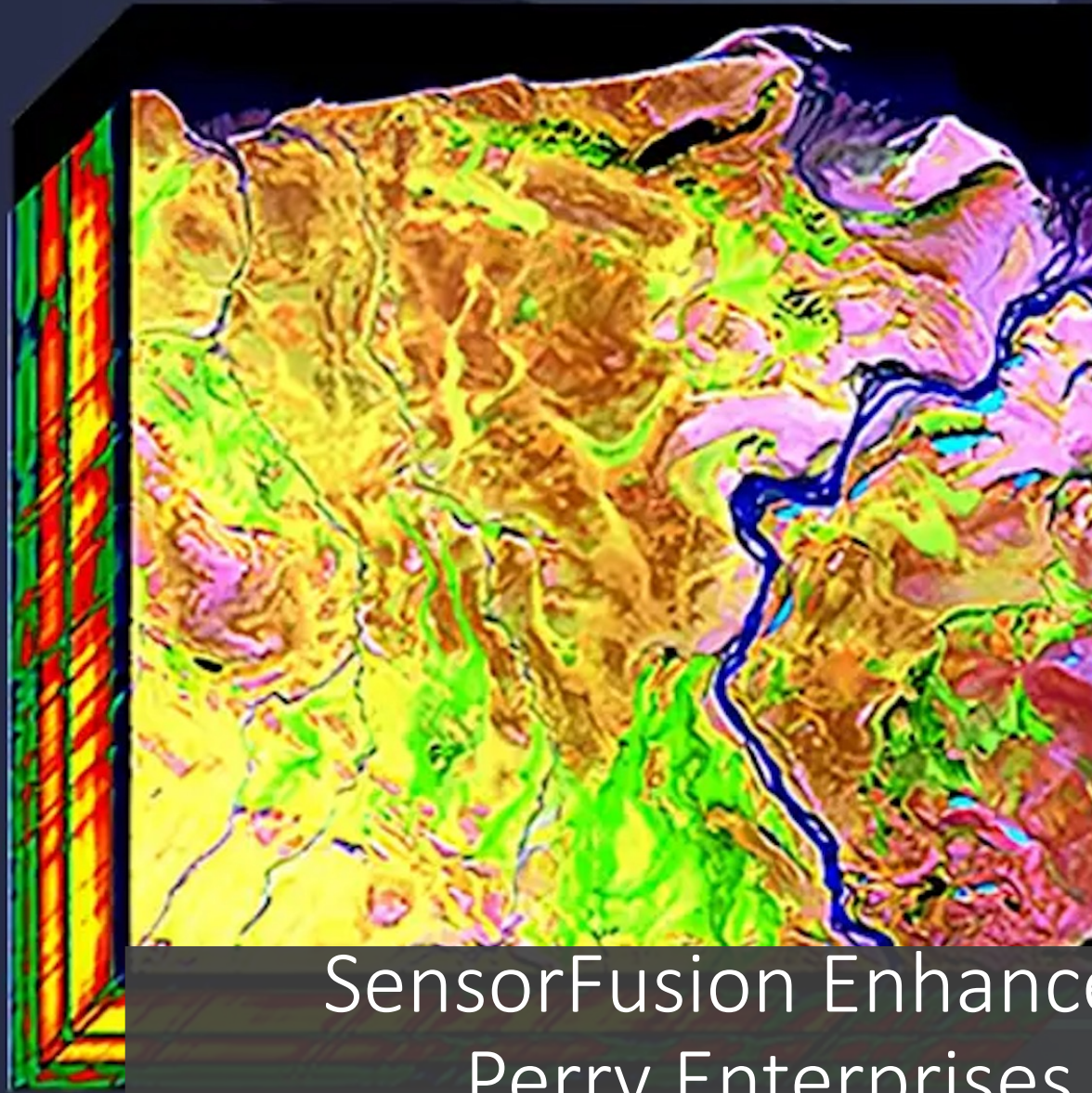




AFWERX Pitch

SensorFusion Enhanced
Contextual A.I.

B-21



SensorFusion Enhanced Contextual A.I.
Perry Enterprises Company LLC

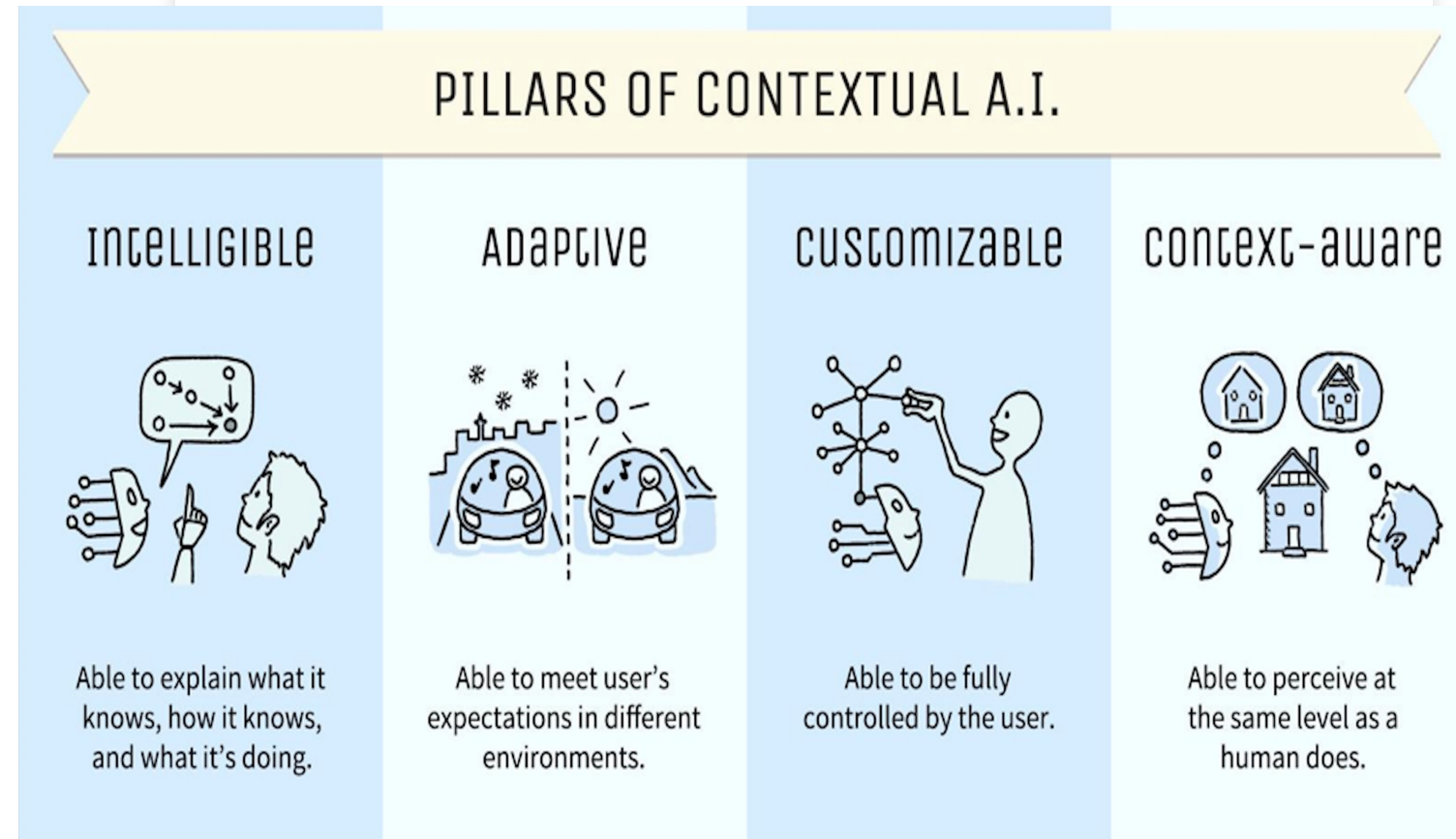
Perry Enterprises Company

- Perry Enterprises Company is a small yet powerful and experienced global defense and geospatial firm with experience working with agencies at the Federal, State, Local, and prestigious research institutions such as The University of Notre Dame, and The National Science Foundation.
- Perry Enterprises Company is led by Kwasi Perry, a decorated former Federal Intelligence Officer with the National Geospatial Intelligence Agency.



Problem/Need USAF Faces

- The USAF is the world's most technologically advanced Air Force in the world, but with the modernization of major future adversaries the extraordinary gap in capabilities is closing slightly. To remain the undisputed leader in airspace indefinitely, the USAF must continue to be leaders in innovation.
- Artificial Intelligence though recognized as the prime technology that can benefit the USAF and other US military branches, is still in its infancy. However, Perry Enterprises proposes a novel application of A.I. that will significantly increase the capability and reach of the USAF called SensorFusion Enhanced Contextual A.I.



Solution/Core tech

- **SECA: SensorFusion Enhanced Contextual AI.** Contextual A.I. is a new endeavor Perry Enterprises Company has conceptually started to develop that proposes to take A.I. to the next level. Data and stimuli with no context makes for an incomplete assessment of the situational awareness and current state of a particular adversarial military environment. Modern A.I., more specifically Computer Vision and Machine Learning doesn't have a problem identifying objects, however it lacks context-based analysis, which makes for less than optimal identification of the environment being observed. SECA acquires raw data from various sensors on manned and unmanned aircraft and incorporates the data within a Machine Learning model in order to provide critical context.
- **Sensors Utilized:** GNSS/GPS, Inertial Navigation/Guidance Systems (INS), Multi and Hyperspectral, LiDAR, AESA Radar, Thermal/IR, Magnetometer (for Magnetic Anomaly Mapping), and High-Resolution Electro Optical Camera Array

Air Force Use Cases

- The B-21 Raider Long Range Strike Bomber with its new open architecture upgrade capability is a prime platform for SECA. Advanced situational awareness mission capability enhances its 6th Generation Aircraft Stealth capabilities.
- The RQ-4 Global Hawk Unmanned ISR platform is another prime candidate for SECA technology.



Advantage Over Other Solutions

Contextual A.I. as proposed by Perry Enterprises Company is a novel approach to A.I. in that it uses context to determine the current state of a conflict environment. It is explained below in further detail.

1. **Geospatial:** Qualitative, where is it located in relation to other objects around it (buildings, infrastructure, environment such as maritime or onshore, by a political border etc). Quantitative, what are the GNSS coordinates, how close is it quantitatively to critical infrastructure (if we saw an artillery battery close or in range to an oppositions Combined Cycle Powerplant).
2. **Sensor Derived:** What is the object's multispectral signature (a tank decoy would have a different multispectral(MS) signature than a real tank...camouflage netting has a different MS signature than the vegetation it tries to mimic). What is the surrounding area's MS signature (if the MS sensor picks up a relatively homogenous signature, then it will be able to also detect anomalies which can prove to be denial and deception). Other sensor derived context includes sound-based context also known as audible signature or sonic signature, Radar based, LiDAR based, and IR/Thermal based
3. **The Methodology:** The AI involved with this capability is Computer Vision via Convolutional Neural Networks, Deep Learning, Unsupervised and Supervised Classification. The raw data from the various sensors is input into the AI models in which context is applied (qualitatively and quantitatively) to determine various threats, activities, troop/equipment movement, and other important intelligence.

Team

Kwasi Perry:

- Former Federal Intelligence Officer for the National Geospatial Intelligence Agency (NGA).
- Attached to Marine Corp Regimental Combat Team 5 as a government asset in Helmand Province Afghanistan
- Deployed with Joint Special Operations Command (JSOC) in Iraq as an electronic surveillance technician.
- Awarded NATO Award, Joint Civilian Achievement Award, Secretary of Defense Award for Global War on Terrorism.





Expected Outcome

I am interested in obtaining an MoU with the USAF to develop SECA technology.

With the MoU I will develop SECA from concept stage to prototype to test and evaluate. After a successful proof of concept, I look to commercialize this technology for use with the USAF.

Thank You

Kwasi Perry

Perry Enterprises Company LLC

kperry@PerryEnterprise.org

346-462-8650