Ideal Innovations Inc. (I-3) is a recognized leader in developing and delivering integrated face recognition (FR) capabilities, including long-range FR systems.

We have delivered systems that perform FR to ranges of 1000 meters using back-packable components. The FR algorithms we have employed in our systems tolerate excursions of pose, illumination and expression (PIE) and handle modest off-angle poses. For full-motion video, we have implemented body and face detection algorithms, as well as tracking algorithms to keep targets centered in the field of view.

FR capabilities we have developed include these features:

- Long-range FR using back-packable optics and processing hardware
- Face matching algorithm tolerant of Pose, Illumination and Expression (PIE) and low-resolution imagery ($\approx$ 20 pixels interpupillary distance)
- Small template size enabling on-board matching using smart phones and tablets with watchlists larger than one million persons
- Networking infrastructure enabled for off-board matching, reporting and communication with authenticated watchlist galleries (if desired)
- High accuracy for unconstrained, obscured and moderate off-angle poses
- Face extraction and real-time matching from still imagery and live, full-motion video
- Real-time compensation for atmospheric turbulence (mild to severe), image degradation and target motion
- Matching algorithms robust to changes in sensor platforms and optics
- Face detection, tracking and PTU control

We also have expertise in:

- Large-scale human subject testing for biometric applications
- Optics and sensors
- Multi-modal biometric fusion platforms
- Modeling and simulation of system performance under a variety of use cases
- Artificial Intelligence and Machine Learning applications
- Systems engineering and systems integration
- Software engineering
- Data reduction and analysis
- Distributed processing and stream processing

I-3 has relevant past performance collecting long-range imagery specifically for developing biometrics systems. Since 2017, I-3 has conducted nearly two dozen field tests collecting imagery for face recognition at distances of 200 to 1200 meters using a wide variety of sensors and optics. Several of these collections included IRB approvals. I-3 has also planned and executed multiple field tests using airborne sensor platforms, and many other types of field tests for DoD and IC customers. The lessons learned will transfer directly to the BRIAR program.

Example face recognition images collected by I-3: enrollment image (left) and image collected at 1000 meters (right).

Although the development of new optics is out-of-scope for BRIAR, potential teaming partners might be interested to learn that I-3 was recently funded to study the feasibility of a novel optics concept for performing FR with voice biometrics at distances up to 5000 meters. Our study showed that the technology is feasible, and it is currently under consideration by potential sponsors.

I-3 has experience working with IARPA, having recently executed a sensitive biometrics contract for IARPA. I-3 is a mature organization that has 20+ years of experience working as a prime and subcontractor on contracts with the US Army, DoD, US Special Operations Command, IARPA and other Intelligence Community and DoD organizations.

I-3 seeks a BRIAR teaming partner whose experience in whole-body biometrics will complement our experience with face recognition, system integration and field testing. We are open to teaming with multiple organizations.

Corporate background:

Established in 1998, I-3 is a service-disabled veteran-owned, professional services company specializing in innovative solutions to our client's most difficult challenges utilizing our biometrics, forensics, and multi-disciplinary team of scientific and I/T SME's, for Government and commercial clients worldwide.

I-3 is a privately-held company that offers our clients a broad array of professionals including PMP-certified program managers, scientists, engineers, I/T professionals, fingerprint, face and iris examiners, forensics technicians and mentors. Over 95 percent of I-3 employees hold a Security Clearance. We take pride in providing rapid, innovative and progressive solutions to our customer's most difficult technical, operational and logistical problems.

I-3 is the prime contractor holding multiple contracts for DFBA in Clarksburg, WV where we employ more than 90 employees performing biometric examination, I/T support, and other support functions. We also hold contracts for biometrics and forensics to DHS, FBI, and other agencies domestically as well as in Afghanistan.

I-3's corporate headquarters is located in Arlington, VA. We have offices in West Virginia, Florida and Washington State. Additionally, we deploy our employees to numerous overseas locations throughout the U.S. Central Command, Africa, Europe and Asia.

Interested parties are invited to contact:

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