

CORE COMPETENCIES

01 Surveillance and Video Analytics

Person and object detection, multi-object tracking and re-identification, pose estimation and action recognition. Multi-camera synchronization and homography-based spatial alignment across differing viewpoints. GPU-accelerated distributed inference on production systems processing millions of video events daily. Capabilities applicable to ISR, force protection, perimeter security and physical security monitoring.

02 Unmanned Systems and Edge AI

AI inference deployed to NVIDIA Jetson aboard unmanned aerial and ground platforms. ROS2 integration for autonomous navigation and real-time perception. ONNX export, structured pruning and graph optimization for resource-constrained embedded GPU. RF signal classification and automatic modulation recognition developed for Department of Defense drone systems.

03 Custom AI Application Development and Modeling

Complete production AI applications, not prototypes. Full-stack systems combining machine learning inference, backend services and user interfaces, deployed on AWS and Azure with automated CI/CD via Azure DevOps and GitHub Actions. Purpose-built models where commercial off-the-shelf does not fit: LLM fine-tuning on curated domain corpora, document intelligence combining OCR and NLP, hyperspectral imaging analysis.

04 Agent Orchestration

Agentic AI architectures: task decomposition, multi-agent coordination, tool use and function calling, human-in-the-loop validation, and deterministic control layers that keep language models out of safety-critical decision paths. Retrieval-augmented generation with citation validation and structured output enforcement. Azure AI Foundry implementation.

05 AI Governance and Assurance

Establishes and leads an enterprise AI Center of Excellence setting AI strategy, standards, model risk documentation and review processes in an FDA-regulated medical device environment. Governance experience spanning FDA, HIPAA and SOC 2. LLM observability and traceability, independent model evaluation and adversarial testing of agentic systems.

DIFFERENTIATORS

- Surveillance and unmanned systems specialization with production depth: person and item tracking with action recognition delivered in production at Fortune 10 retail scale, plus Department of Defense work on Vision Transformer RF signal classification for unmanned aerial systems (UAS).
- Prior United States Air Force service under a Top Secret clearance, with three years as a defense contractor in Kuwait and Afghanistan.
- Published deep learning research: curriculum learning for automatic modulation classification (ProQuest, 2023) and IEEE World AI IoT Congress (2022).
- Production machine learning delivered inside HIPAA, SOC 2 and FDA-regulated environments, including standing up the AI governance and model risk protocols themselves.
- Multi-cloud delivery across both AWS and Azure rather than a single-vendor practice. Principal holds an M.S. in Computer Science.

PAST PERFORMANCE

RMTZ, Inc. (Remitz)

COMMERCIAL PRIME · SEPTEMBER 2024 TO FEBRUARY 2025 · \$185,000 ANNUALIZED

Data science leadership and hands-on machine learning delivery for a commercial client operating under HIPAA and SOC 2 controls. Scope covered model development, production deployment and the client's machine learning platform, performed inside the client's compliance program.

Exponential Genomics, Inc.

COMMERCIAL PRIME · FEBRUARY 2025 TO PRESENT · \$42,000 ANNUALIZED

Technical operations and systems administration for a commercial research organization. Access provisioning for employees and vendors, onboarding and offboarding controls, vendor coordination, and administrator training.

DEMONSTRATED CAPABILITY, INTERNALLY FUNDED

- Production applications designed, built and operated end to end by DI-DS with company funds.
- On-device object detection and animal re-identification at 6.5 ms per frame, AP50 0.88, on a hybrid edge and cloud architecture.
  - Explainable inference in production: every model output carries its reasoning and a confidence level, and the system is positioned as decision support.

COMPANY DATA

|                    |                                                                                                                              |
|--------------------|------------------------------------------------------------------------------------------------------------------------------|
| UEI                | XJYNX79M3YR7                                                                                                                 |
| CAGE               | 0LXQ0                                                                                                                        |
| SAM.GOV            | Active registration through 25 July 2027                                                                                     |
| CERTIFICATIONS     | SBA-certified Service-Disabled Veteran-Owned Small Business (SDVOSB) and Veteran-Owned Small Business (VOSB)                 |
| BUSINESS SIZE      | Small                                                                                                                        |
| ESTABLISHED        | 2024                                                                                                                         |
| INCORPORATION      | Ohio                                                                                                                         |
| DISTRICT           | OH-08                                                                                                                        |
| PERSONNEL SECURITY | No active personnel or facility clearance. Principal previously held Top Secret (USAF). Clearance-eligible with sponsorship. |

NAICS CODES

|        |                                                       |
|--------|-------------------------------------------------------|
| 541511 | Custom Computer Programming Services                  |
| 541512 | Computer Systems Design Services                      |
| 541519 | Other Computer Related Services                       |
| 541715 | R&D Physical, Engineering and Life Sciences           |
| 541690 | Other Scientific and Technical Consulting             |
| 541990 | Other Professional, Scientific and Technical Services |
| 518210 | Computing Infrastructure and Data Processing          |

PSC CODES

|      |      |      |      |      |
|------|------|------|------|------|
| B506 | DA01 | DA10 | DF01 | R425 |
| R499 |      |      |      |      |

CORE TECHNOLOGIES

|          |                                                                          |
|----------|--------------------------------------------------------------------------|
| MODELING | Python, PyTorch, TensorFlow, ONNX Runtime, OpenCV, MediaPipe, Detectron2 |
| EDGE     | NVIDIA Jetson, CUDA                                                      |
| AWS      | SageMaker, Bedrock, Textract                                             |
| AZURE    | Azure DevOps, Azure AI Foundry                                           |
| PLATFORM | MLflow, Docker, Terraform                                                |
| DATA     | Milvus, pgvector, PostgreSQL, Kafka, Airflow                             |

CONTACT

|         |                                      |
|---------|--------------------------------------|
| NAME    | Nathan R. Callahan                   |
| TITLE   | Managing Member                      |
| EMAIL   | ncallahan@di-ds.com                  |
| PHONE   | (513) 273-1222                       |
| ADDRESS | 5560 Stephenson Rd, Oxford, OH 45056 |
| WEB     | www.di-ds.com                        |