

CASE NUMBER: RES-2023-01510

# Jhon B. Arango

SENIOR CYBERSECURITY SYSTEMS ENGINEER

Odenton, MD • [info@arkonaresearch.com](mailto:info@arkonaresearch.com) • [www.arkonaresearch.com](http://www.arkonaresearch.com)

Senior Cybersecurity Systems Engineer with 23+ years across USAF, NSA, and defense industry. NSA CNODP graduate with expertise spanning offensive/defensive cyber operations, weapon system cybersecurity, systems engineering, and production agentic AI systems. Creator of the ARKONA autonomous ecosystem, COMET AI governance framework, and local model fine-tuning research pipeline.

## KEY SKILLS

- Multi-Agent Architecture • AI Governance Frameworks • Local Model Fine-Tuning (QLoRA) • Hybrid LLM Routing
- Offensive / Defensive Cyber Ops • OT/ICS Security • Reverse Engineering • Systems Engineering (DoDAF, JCIDS)
- Risk Management (NIST, EVM) • Requirements Engineering & CCB • Python / React / FastAPI / TypeScript
- Production AI Deployment

## EXPERIENCE

### Senior Cybersecurity Systems Engineer / Agentic AI Systems Engineer

2025 – Present

#### [ARKONA Ecosystem](#)

Odenton, MD

- Architected and deployed a 6-domain autonomous ecosystem with 47 services and 18 AI agents in production.
- Built hybrid LLM routing system (MuXD) with prompt optimization across cloud and local models — 47% API cost savings.
- Developed FORGE software factory with 7 AI agents and Skill Builder pipeline: governance task import → agent construction → training data collection → QLoRA fine-tuning on dual P40 GPUs → MuXD local model routing.
- Researched local model fine-tuning: QLoRA 4-bit quantization, DeepSpeed ZeRO-3 multi-GPU parallelism, automated data curation across Llama 3.1, Phi-4, Gemma 2, and Nemotron architectures.
- Designed COMET AI governance framework: 5-level delegation model grounded in NIST AI RMF, ISO 42001, and IEEE standards.

### Director of Operations

2024 – Present

#### [Percival Engineering](#)

Fort Meade, MD

- Lead operational and strategic employment of OCO & DCO cyber system engineering capabilities against USG priority systems.
- Team lead for cross-functional cybersecurity teams in pursuit of cyber hardening Cyber Physical Systems (CPS).

### Director of Operations

2023 – 2024

#### [659th Intelligence, Surveillance, & Reconnaissance Group](#)

Fort Meade, MD

- Directed operational employment of AF offensive & defensive cybersecurity capabilities for 1,800 Airmen / \$7.3M across 4 NSA locations.
- Applied SE principles to optimize cybersecurity strategies; led continual refinement of operational procedures.

### Chief Cybersecurity Engineer / Deputy Military Technical Director

2021 – 2023

#### [7th Intelligence Squadron / NSA-C32 WSC](#)

Fort Meade, MD

- Technical leadership for Weapons and Space Cybersecurity Labs — 250+ employees / \$36.8M.
- Derived system requirements and stakeholder needs; secured approval for system/component definitions (requirements, designs, interfaces, test procedures).
- Assessed program risks: probability of occurrence and quantified consequence of failure. Developed CCB Charter; served as active CCB member.

**Cyber Exploit Engineer, NSA CNODP**

2018 – 2021

[70th Operational Support Squadron / NSA](#)

Fort Meade, MD

- Completed 22-week PhD-level CNODP: Advanced Software Analysis, Reverse Engineering, Network Security, Cryptography, Windows/Linux Internals, OS Security. Followed by 30 months of technical tours.
- Developed IA requirements (C//N/A); defined security mechanisms: cryptography, DAC, MAC, hashing, key management.

**Flight Commander, Cybersecurity Test Flight**

2017 – 2018

[18th Flight Test Squadron — Hurlburt Field, FL](#)

- Stood up Operational Test Cyber Flight for AFSOC/SOCOM aircraft & weapon system cybersecurity testing.
- Conducted end-to-end system trade analyses; provided technical direction for complex HW/SW integration and testing.
- Supported JCIDS documentation (ICD, CDD, IA Strategy); participated in IPTs for new capability design.

**Deputy Flight Commander, Cyber Test Flight**

2016 – 2017

[46th Test Squadron — Eglin AFB, FL](#)

- Directed 63-member flight conducting cybersecurity tests of DoD aircraft & weapon systems. Co-developed CSRA methodology.
- Quantitative analysis in Reliability, Maintainability, Vulnerability, Survivability; risk mitigation via modeling & simulation.

**Executive Officer**

2015 – 2016

[46th Test Squadron — Eglin AFB, FL](#)

- Led staff for Squadron Commander across 2 Detachments, 7 Flights, 11 locations, 511 personnel. Coordinated CCB/design/program review action items.

**Lead Test Engineer, C2 Air Operations**

2014 – 2015

[46th Test Squadron — Eglin AFB, FL](#)

- Led multi-discipline government & industry team for AOC developmental testing. Generated alternative system concepts and physical architectures.
- Implemented DoDAF views; established formal requirements change management and early verification planning.

**Systems Engineer, Non-Kinetic Counter Electronics**

2012 – 2014

[AFLCMC — Eglin AFB, FL](#)

- Weapon lethality assessments for AF non-kinetic weapons. Managed DoDAF/SOA-compliant architecture requirements.
- SE documentation (SEPs, ICDs, Requirements Specs); AoA participation; lifecycle cost/risk/growth trade studies.

**Team Lead, F-15 Intermediate Avionics Shop**

2005 – 2012

[33d Maintenance Squadron — Eglin AFB, FL](#)

- Managed repair of 600+ F-15 LRUs across 47 radar, nav, EO, comm, and armament avionics systems. Streamlined processes via SE principles.

**F-15 Avionics Technician**

2002 – 2005

[18th CMS \(Kadena AB, Japan\) / Lackland & Sheppard AFB \(TX\)](#)

- Top graduate, F-15 Avionics (top 5%). Diagnosed 300+ LRUs at Kadena AB. Led avionics test station setup with vendor coordination.

**EDUCATION****PhD in AI/ML**

Starting May 2026

Agentic AI, multi-agent communication, governance

**MS, Systems Engineering** 2015 – 2021

Embry-Riddle Aeronautical University

**BS, Electrical Engineering** 2009 – 2011

University of West Florida

**CERTIFICATIONS**

DAWIA APDP Level II, T&amp;E (2018)

EC-Council CEH (2017)

CompTIA CASP (2016)

CompTIA Security+ (2015)

DAWIA APDP Level II, Eng (2014)

DAWIA Level I, PM (2013)

DAWIA Level I, Sci/Mgr (2013)

CompTIA A+ (2001)

**ACHIEVEMENTS****2021** NSA CNODP Graduate**2017** 1st Place Spark Tank AFSOC**2012** Published EMC 3(2012)609**2005** Levitow Award ALS**2002** Top Grad F-15 Avionics**CASE NUMBER: RES-2023-01510**