

David C. Flynn

CISSP | Senior Cybersecurity Architect · AI/ML Infrastructure · Forensic Technical Analyst · Astrophysics Researcher

dflynn5656@gmail.com | Laurel, MD 20708 | Remote or On-Site: MD / DC / Northern Virginia | www.sftag.net · www.eternalsolar.net

PROFESSIONAL SUMMARY

Senior Cybersecurity Architect and AI/ML Infrastructure Engineer with more than twenty-five years of experience designing high-reliability systems across federal, commercial, and independent research environments. CISSP active since 2005. Current practice spans forensic technical analysis of digital media, sovereign AI platform design, and peer-reviewed astrophysics research. I build systems that are reproducible, defensible, and optimized for rigor — from zero trust network architectures protecting federal agencies to dual-node GPU clusters running 70B-parameter inference pipelines to published rotation curve models for 175 galaxies. Independent researcher with no institutional affiliation and no external funding.

CORE COMPETENCIES

Forensic Analysis: Photo/file metadata, EXIF, steganography, chain of custody

AI/ML Infrastructure: RAG/CAG pipelines, Langflow, Weaviate, Docling, vLLM

Astrophysics Research: Galaxy rotation curves, SPARC, EPS omega modeling, Corbelli

Application Security: SAST/DAST, HP Fortify, AppScan, CVE remediation at scale

Data Engineering: ETL pipelines, vector search, semantic chunking, JSON schema

Cybersecurity Architecture: Zero Trust, Protective DNS, NIST 800-207a, SIEM

GPU Systems & HPC: Dual-node Blackwell cluster, 192GB VRAM, quantized inference

Cloud Architecture: AWS, Azure, GCP, SoftLayer, multi-cloud security assessment

DevOps & Automation: Docker, Kubernetes, Terraform, GitLab CI/CD, Ansible

Technical Writing: White papers, peer-reviewed papers, federal deliverables

CURRENT ENGAGEMENTS

Forensic Technical Analyst — Independent / Contract

2025 – Present

Conducting forensic technical analysis of photographic and digital media files. Work involves detailed examination of image metadata (EXIF, IPTC, XMP), file system timestamps, hash verification, steganographic analysis, and chain-of-custody documentation. Producing structured technical reports suitable for legal and investigative proceedings.

- Photo file metadata extraction and validation across multiple file formats
- EXIF geolocation analysis and timestamp integrity verification
- Hash-based file authentication and tamper detection
- Structured reporting for evidentiary purposes

Sovereign AI Lab Architect & Independent Researcher — Independent

2023 – Present

Dual-Node GPU Cluster · RAG/CAG Pipeline · Astrophysics Research Program

Designed and built a sovereign-grade AI research infrastructure purpose-built for large-scale scientific reasoning and peer-reviewed publication. System runs entirely on self-owned hardware with no cloud dependency, no institutional affiliation, and no external funding.

- Dual-node cluster: Intel i9-14900K (24c/32t), 128GB DDR5, 20TB NVMe 4.0, RTX PRO 6000 Blackwell (96GB VRAM) per node; 100Gb Mellanox interconnect
- Built complete CAG pipeline: Langflow 1.7.3 + Weaviate + Docling + AstroSage-70B via vLLM for structured astrophysical reasoning over 175-galaxy SPARC dataset — actively in progress

- Quantized 70B model inference at full throughput on single GPU; AWQ/8-bit deployment with 26GB VRAM headroom
- Implementing Weaviate schema with 38 properties per galaxy object for omega parameter correlation analysis
- Designed for Zenodo-archivable reproducibility — Docker Compose pipeline is executable methodology, not just description

PUBLICATIONS & RESEARCH

Published & Submitted Papers:

- **A New Empirical Fit to Galaxy Rotation Curves** — *Frontiers in Astronomy and Space Sciences*, 2025
<https://www.frontiersin.org/journals/astronomy-and-space-sciences/articles/10.3389/fspas.2025.1680387/full>
- **High-Performance Dual-Node AI Infrastructure for Astrophysics and Cybersecurity** — TechRxiv (preprint) | Submitted — *IEEE Transactions on Emerging Topics in Computing*, Oct 2025
<https://www.techrxiv.org/users/999963/articles/1360377-high-performance-dual-node-ai-infrastructure-for-astrophysics-and-cybersecurity>
- **Cognitive Integrity Security: Securing Human-AI Interaction in Large Language Model Systems** — Authorea Preprints, 2026
- **The Pathway to Implementing Zero Trust: Why Microsegmentation Remains the Critical Barrier** — TechRxiv, 2026
- **Advancing Towards Protective DNS: Transitioning to and Deploying PDNS in Federal Agency Networks** — Zenodo, 2026
- **Gear Chats and AI: The New Way to Buy** — Zenodo, February 2026

Books (Amazon — Search for the Alien God series, 5 volumes):

- Aurora Series (4 volumes) + The Other Magi — science fiction integrating EPS theoretical framework with Catholic theological architecture; origin source of the empirical omega correction concept

PROFESSIONAL EXPERIENCE

NIST SP 800-53 Program Lead — Contract (via Upwork)

2025

Rapid7 · RMF Lifecycle · SSP / POA&M / Authorization Readiness

- Executed full RMF lifecycle for priority institutional systems — control selection, tailoring, implementation guidance, and authorization readiness under NIST SP 800-53 Rev. 5
- Developed and maintained System Security Plans (SSP), POA&M registers, risk registers, and control traceability documentation
- Built overlays and baselines for research systems, student-facing systems, and cloud services
- Coordinated SP 800-53A assessment procedures and continuous monitoring using Rapid7
- Reduced open POA&M items and improved time-to-closure through prioritized remediation workflows

Senior Cybersecurity Architect — ARMAVEL / Veterans Administration

Apr 2023 – Jun 2023

VA Network Modernization · Tier 4 Public Trust Clearance Process

- Authored Protective DNS white paper per VA directive 6403, aligning CISA/NSA PDNS model with VA enterprise goals
- Delivered Zero Trust Architecture analysis under NIST 800-207a with microsegmentation guidance informed by NIST 800-204a/b
- Led internal CISSP training program for engineering team using A Cloud Guru and Shon Harris methodology
- Entered Tier 4 Public Trust clearance process (7-year background investigation)

Senior Application Security Engineer — Leidos / Social Security Administration

Oct 2017 – Apr 2018

- Reduced 32 million HP Fortify CVE findings through coordinated JRE 1.7→1.8 upgrade and NESSUS/IAVA realignment
- Managed security testing coordination across 62 stakeholders and multiple development leads over six months

- Deployed and managed virtual test environment for application security validation across SSA in-house development

Cybersecurity Architect — [CenturyLink](#) 2016 – 2017

- Designed customer security solutions including DDoS mitigation, PCI DSS compliance architecture, and cloud security assessments
- Delivered security consulting to commercial clients across financial services, healthcare, and media sectors

Cybersecurity Architect — [IBM](#) 2013 – 2016

- Delivered cloud security assessments across AWS, SoftLayer, and IBM Cloud Managed Services for federal and commercial clients
- Led Platform IT security planning for the Air Force at the Pentagon
- Application security testing using AppScan, Fortify, and static/dynamic analysis toolchains
- Supported IBM Watson AI infrastructure security architecture

Project Manager & Security Lead — [Business Integra / IRS](#) 2013

- Managed penetration testing and code analysis teams for IRS T4 RTCP 4087
- Coordinated multi-team application security assessment and remediation workflows

Security Consultant — [Department of Commerce / OCIO](#) 2013

- Developed risk analysis processes and security assessment workflows for OCIO

Cloud Security Architect — [TCS / Insigma](#) — [SiriusXM Radio](#) Nov 2018 – Dec 2018

- Six-week AWS cloud security assessment across 7 of 43 SiriusXM applications including Automated OTA, CloudBees Jenkins Enterprise, and In-Vehicle Messaging
- Delivered ten-point security best practice framework covering IAM, S3 access control, MFA, encryption at rest, CloudTrail/CloudWatch, key rotation, and vendor risk

Additional roles 1996–2011: General Dynamics, SAIC, Digex, Perot Systems, MCI Metro, Trusted Information Systems — engineering, testing, and security leadership across federal and commercial environments.

TEACHING & INSTRUCTION

STEM & Robotics Instructor — [NOVA \(Northern Virginia Community College\)](#) Jul – Aug 2019

- Led three concurrent summer programs: STEM Elementary (solar, BlocksCAD, Scratch), VEX IQ Robotics (competitive robot build), STEM High School (3D programming, laser etching, CAD libraries)

Adjunct Professor — [Brightwood College](#) Aug – Dec 2018

- Taught Security+, Windows Server 2012/2016, and Windows 10 — 30-day intensive format with hands-on lab buildouts
- Students physically built working server network from scratch rather than using virtual environments; promoted to lead CST instructor for Baltimore campus

EDUCATION

M.S. Computer Science — [Loyola University Maryland](#)

M.A. Catechetics — [Notre Dame Graduate School, Christendom College](#)

CERTIFICATIONS & PROFESSIONAL AFFILIATIONS

- CISSP — ISC2, Certification ID 61866, Active since January 2006, Expires January 2027
- AWS Certified Solutions Architect Associate (previous)
- IBM Cloud Architect Certification
- Application Security Specialist

- ORCID Researcher ID: 0000-0002-2768-6650 | <https://orcid.org/0000-0002-2768-6650>

- ISC2 Member
- ISSA — Former Vice President, Baltimore Chapter

ADDITIONAL EXPERTISE

- Off-grid solar design: LFP battery systems, MPPT controllers, RV/trailer installations — published at eternalsolar.net with YouTube walkthrough series
- Certified Shimano bicycle mechanic — professional-grade electronics and mechanical systems diagnostic experience
- Ski Patroller — emergency response and technical operations under field conditions
- Military Veteran

References and writing samples available upon request