

Sean D. Egan, PhD

Applied AI for Intelligence and Defense

Navy Information Warfare Officer · Atmospheric Scientist

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Active TS/SCI clearance · Ask the AI agent on my site about my work: sean.theinformed.org

SUMMARY

Knows the mission from the inside and builds with the models every day; most people at the table know one or the other. Navy Information Warfare Officer and PhD scientist who uses agentic AI to build tools for partners in defense, Information Warfare, and the intelligence community, several now used in operations. Ten years on active duty leading operational science teams in the Pacific, Europe, and CONUS; now serving in the Navy Reserve. Seeking a senior role in applied AI for intelligence and defense.

APPLIED AI SYSTEMS

- **OrbitWatch:** Reports satellite maneuvers in the public catalog of 68,809 objects, with email and text alerts. Maritime Space Officers have started using it, and Information Warfare uptake is new and growing. Detection holds a measured false-alarm bound; a self-hosted LLM writes each report, and code checks every number. Two papers under review.
- **Operational weather and ocean viewer:** Built the viewer for operational METOC work and trained its models for radar nowcasting, satellite-derived radar, and super-resolution. Held-out scores are published for every training run.
- **Bob, an agent for deployed service members:** Keeps four service members in touch by web, phone, and text across time zones and poor connections. Rebuilt an open-source agent gateway around a custom memory with nightly curation; grounding evaluation found 0 leaks in 352 verdicts.
- **Multi-agent engineering:** Runs eleven coding-agent seats (Claude Code, Codex, Grok) on shared code across five machines to build and maintain 26 sites, with concurrency checks, a shared memory, and per-call cost ledgers.
- **Model serving and secure deployment:** Serves a 235-billion-parameter open model on two NVIDIA DGX Sparks behind an OpenAI-compatible API. Shipped a CAC-gated AWS GovCloud site the day the account was approved.

RESEARCH

- **LLM internals:** Dictionary-built token vectors did not beat a plain lookup table in 270 runs; follow-up began Oct 2026.
- **AI referee:** Training open models to check a paper's claims against its data; first fine-tune submitted Oct 2026.

SELECTED SITES AND TOOLS

Operational: Space Operations Explorer; METOC Viewer; Satellite Viewer; OrbitWatch

Information Warfare teaching: explorers and labs for propagation, targeting, acoustics, the spectrum, and cryptography

AI teaching: six plain-language books (94 chapters, 77 narrated videos) and two field guides

Writing: open questions about working with AI and machine learning; sean.theinformed.org/writing

All available at sean.theinformed.org/iw

CORE SKILLS

AI and agents: Claude API, Claude Code, Codex; agent design; retrieval; evaluation; guardrails; cost control

Models and infrastructure: PyTorch; training and LoRA fine-tuning; vLLM; AWS GovCloud; DoD HPCMP; Docker; Linux

Domain: meteorology and oceanography; space systems and orbital mechanics; remote sensing; all-source intelligence

Programming: Python, Fortran, C/C++; builds with coding agents and reviews their work

Languages: English (native); German and Spanish (full professional proficiency)

PROFESSIONAL EXPERIENCE

Founder and Lead

2020 – Present

The Informed · seven scientists and service members work on it every day; four lead it and work with the agencies

- **Mission:** Find problems in Navy meteorology, oceanography, and space that nobody has funded, build the solution, and hand it to the fleet free: twenty-six tools and teaching sites, several now used in operations.
- **Outcome:** Demonstrations that showed Navy Meteorology and Oceanography Command what to ask ONR to fund.

Lieutenant, U.S. Navy Reserve

Aug 2025 – Present

Naval Oceanography Operations Command · previously activated in support of Fleet Weather Center Norfolk

- **Current assignment:** Attached to the Naval Oceanography Operations Command (NOOC), supporting global undersea warfare and reachback.
- **Activated in support of Fleet Weather Center Norfolk:** Redeveloped the command's tropical cyclone concept of operations and trained direct-commission METOC officers toward qualification.

Officer in Charge

Feb 2022 – Aug 2025

Fleet Weather Center Norfolk, Aviation Detachment Germany · U.S. Navy · Kapaun Air Station, Germany

- **Command:** Led a 30-Sailor geographically separated unit producing watches, warnings, and safety-of-flight packages for every ashore Navy and Marine Corps asset across EUCOM, CENTCOM, and AFRICOM.
- **Intelligence:** Integrated Navy personnel into the 693rd ISR Group's all-source fusion (450th Intelligence Squadron, ELINT/SIGINT; 24th Intelligence Squadron, GEOINT/IMINT) supporting DCGS-4; led all-source analysis teams.
- **NATO:** Worked with the Multinational METOC Support Group (MNMSG) in Euskirchen to provide meteorology and oceanography support to NATO forces.

Operations Department Head (N3)

Feb 2018 – Feb 2022

Joint Typhoon Warning Center · U.S. Navy · Pearl Harbor, Hawaii

- **Operations officer:** Led a watch floor of 52 personnel generating tropical cyclone forecasts and warnings across the Pacific, Indian, and Southern Hemisphere oceans. Qualified Typhoon Duty Officer and Command Duty Officer.
- **Founded the Development and Innovation Group:** Codified in command directive a coding group open to Sailors, Marines, and civilians, with a training pipeline, seminars, code review, and Scrum. Grew from 3 developers to 20; shelved projects shipped within months; adopted by sister commands.
- **Advocacy through research:** Co-authored the BAMS account of microwave satellite data in operational intensity estimation; the case won increased remote-sensing support.

ADDITIONAL EXPERIENCE

Founder, H BAR LLC (Alaska), the legal entity behind The Informed

Jun 2011 – Present

Adjunct Professor, Chemistry, Rasmussen University and University of Maryland Global Campus

Mar 2020 – Present

Science and Math Subject Matter Expert, StraighterLine; redeveloped the science and math curricula

2020 – 2025

Enlisted service, Officer Candidate School (commissioned March 2017), and Information Warfare officer training, U.S. Navy

Aug 2015 – Feb 2018

EDUCATION

Ph.D., Atmospheric Chemistry, University of Alaska Fairbanks, 2019; funded by NOAA and NASA grants and completed while on active duty

Graduate Certificate, Space Systems Fundamentals, Naval Postgraduate School, 2021

QUALIFICATIONS AND AWARDS

Qualifications: Information Warfare Officer; METOC Officer; Navy Space Cadre; Typhoon Duty Officer

Awards: Meritorious Service Medal; Navy and Marine Corps Commendation Medal; Joint Service Achievement Medal

SELECTED PUBLICATIONS

1. Egan, S. D., and Conklin, D. (2026). Does station-keeping relax before retirement? A registered, population-scale observational test in the geostationary belt. *Zenodo* (preprint). doi:10.5281/zenodo.22884814. Submitted to *Acta Astronautica* (under review).
2. Egan, S. D., and Conklin, D. (2026). A continuously audited, publicly gated false-alarm control for manoeuvre detection from two-line element sets. *Zenodo* (preprint). doi:10.5281/zenodo.22884816. Submitted to *Acta Astronautica* (under review).
3. Howell, B., Egan, S., and Fine, C. (2022). Application of Microwave Space-Based Environmental Monitoring (SBEM) Data for Operational Tropical Cyclone Intensity Estimation at the Joint Typhoon Warning Center. *Bull. Amer. Meteor. Soc.*, 103(10), E2315–E2322. doi:10.1175/BAMS-D-21-0180.1
4. Egan, S. D., Stuefer, M., Webley, P. W., et al. (2020). Modeling volcanic ash aggregation processes and related impacts on the April–May 2010 eruptions of Eyjafjallajökull volcano with WRF-Chem. *Nat. Hazards Earth Syst. Sci.*, 20, 2721–2737. doi:10.5194/nhess-20-2721-2020
5. Stuefer, M., Freitas, S. R., Grell, G., et al., and Egan, S. D. (2013). Inclusion of ash and SO₂ emissions from volcanic eruptions in WRF-Chem: development and some applications. *Geosci. Model Dev.*, 6, 457–468. doi:10.5194/gmd-6-457-2013