THALES SAVKLI

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PROFILE

Data scientist and software developer specializing in **algorithm development**, **applied mathematics**, and **modeling & simulation**. Experienced building **Python-based analytical tools**, simulation environments, real-time data pipelines, and research-driven software for defense-relevant applications. Strong background in **machine learning**, statistics, cryptography, and technical collaboration.

EDUCATION

Virginia Tech Blacksburg, VA
*B.S. in **Computational Modeling & Data Analytics (Data Science)*** *Aug 2022 – May 2025*
Minors: *Computer Science, Mathematics, Statistics*
In-major GPA: *3.97/4.0*
T.W. Hatcher Mathematical Scholarship *(highest award, 2023–24)*

EXPERIENCE

Johns Hopkins Applied Physics Laboratory (QNI) May 2025 – Sep 2025
Intern, Software/Algorithms (Infrastructure Modeling & Simulation, Unmanned Traffic Management) *Laurel, MD*

- Built a **Python simulation platform** (CityLink) for **critical-infrastructure scenarios**, supporting faster **incident-response analysis**.
- Improved **CityLink** extensibility with a **decoupled framework**, **robust error handling**, and **idempotent de-duplication** via an **LRU cache**.
- Created a rule-based **Unmanned Traffic Management (UTM)** engine to flag airspace/procedural violations from **drone telemetry**.
- Implemented a **Dockerized streaming pipeline** with **Kafka** to **ingest**, **evaluate**, and **trigger responses** to real-time telemetry.
- Built AI-assisted engineering workflows using **LLM scripts**, **MCP-based tooling**, and agentic coding tools to streamline documentation, debugging, code exploration, and repetitive development tasks.
- Provided **ongoing consultation** after the internship term.

Johns Hopkins Applied Physics Laboratory (QNI) May 2024 – Sep 2024
Intern, Software/Algorithms (Fixed-wing UAS Path Planning & Simulation) *Laurel, MD*

- Developed a **4D drone path-planning environment** with **dynamic obstacles** and **Dubins paths** for fixed-wing aircraft.
- Designed **performance tests** and **algorithm validation** under **time-based airspace restrictions** and **multi-drone coordination**.
- Collaborated with subject matter experts to refine **APIs** and **UX**, improving usability and effectiveness.
- Built a **Python desktop app** to **automate task creation** and **orchestrate workflows**, achieving a **50%+ speedup**; role **designated for DHS Suitability**, with work limited to approved scopes while sponsorship progressed.
- Provided **ongoing consultation** after the internship term.

PROJECTS/RESEARCH

Documetrics — Naval Surface Warfare Center Dahlgren Division Jan 2025 – May 2025
Research Project, Advisor: Dr. David Marchette *Blacksburg, VA*

- Developed **documentation-quality metrics** (conciseness, completeness, accuracy, comment density) using **Python**, **UniXcoder**, and **Sentence-BERT**.
- Compared **human vs. LLM documentation**; identified **recurring patterns** and delivered **actionable recommendations** to improve quality.
- Built an **interactive web dashboard**, serving as the **entry point** to the analysis code and as GUI for exploration and reporting, using **React**, **Tailwind CSS**, **Chart.js**, and **Vite**.
- **Code:** github.com/ThalesTDS/CMDA_Capstone

Virginia Tech Aug 2023 – May 2025
Lead Researcher — Coding Theory & Cryptography *Blacksburg, VA*

- Constructed **rank-metric code families** with targeted algebraic properties and formalized theoretical conditions governing their behavior.
- Co-authored a **submitted manuscript** on **Binomial Moment Determined (BMD) codes**, covering construction, existence, and cryptographic applications.
- Implemented **MAGMA experiments** to validate theoretical results, benchmark candidate constructions, and analyze structural invariants.
- Led the research workflow from mathematical formulation through computational validation, writing, and revision with faculty guidance.

TECHNICAL SKILLS

Languages: Python, Java, C, R, CUDA, MAGMA
Algorithms/ML: Machine learning, statistics, optimization, simulation, telemetry analysis
Tools: Git, Docker, Kafka, Agentic LLM Workflows, AWS, DynamoDB