

# Christopher Jellen

SENIOR DATA SCIENCE AND ANALYTICS ENGINEER

Seattle, WA

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## Education

### United States Naval Academy

Annapolis, MD

BS Honors Applied Mathematics | BS Mechanical Engineering | **GPA: 4.00**

Jun 2016 - May 2020

- Graduated ranked 1<sup>st</sup> in my class by Academic Order of Merit.
- Trident Scholar: A Machine-Learning Model for Prediction of Optical Turbulence in Near-Maritime Environments

## Work Experience

### The MITRE Corporation

Seattle, WA

#### Software Engineering | Machine Learning Engineering

2020 - Present

- Supported The Veteran's Benefits Administration, the United States Marine Corps, and Intelligence Community as an engineer and leader, building a strong understanding of customer needs, clear communication, and strategic planning.
- Developed AI/ML-informed analytic prototypes for quality assurance at scale.
- Designed and built a RESTful API, integrating with existing data pipelines, which enabled repeatable, scalable analysis.
- Led Agile SCRUM meetings, wrote and tracked tickets through JIRA, and executed on rapid, customer-centric design.
- Built and evaluated custom CNN models for over-the-air radio signal processing and classification.
- **Core Technical Skills:** Python, PyTorch, R, Postgres, MongoDB, git, Docker, Ubuntu Linux, CentOS, Powershell

### CALDERA: Automated Adversary Emulation

Remote

#### Product Lead | Engineering Manager

2020 - Present

- CALDERA is an open-source framework for automated adversary emulation. It offers a powerful combination of atomic abilities, automated attack planning, and stealth-focused C2 capabilities to make cyber risk analysis accessible. In planning the future of CALDERA, I learned effective product management in the context of competing customer interests and priorities.
- Product lead for CALDERA's cyber ontological mapping capability, interfaced with a range of DoD sponsors to ensure wide interoperability and wider use of CALDERA as a cyber analytic tool.
- Led a team of four (3 engineers, 1 data scientist) to develop novel offensive cyber planning capabilities and data management solutions.
- Built closed-source AI-ML enabled cyber posture analysis capabilities deployed on AWS.
- Developed a strong understanding of agile project management and continuous delivery for a range of end-users and sponsors.
- **Core Technical Skills:** Python, JavaScript, Go, Docker, AWS, Ansible, bash scripting

## Projects

### National Data Buoy Center API

[github.com/cdjellen/ndbc-api](https://github.com/cdjellen/ndbc-api)

An open-source Python API for NDBC, served on PyPi.

- A Python API for querying oceanographic and atmospheric data from the National Data Buoy Center. The NDBC API makes climate research data more accessible by parsing and filtering the whitespace-delimited measurements distributed by the NDBC data service.
- The package includes full test coverage, powered by PyTest, as well as extensive usage documentation.

### National Association of Corrosion Engineers Design Competition

Houston, TX

A semi-autonomous robot for computer-vision enabled corrosion detection and mapping.

Aug 2018 - Apr 2019

- Led a team of five students and engineers to plan, design, integrate, build, and test a semi-autonomous corrosion detection robot.
- Presented update briefings to the Office of Naval Research (ONR), communicating the project road-map, finances, and technical specifications.
- Placed 1<sup>st</sup> in the competition through the development and application of a CNN-based corrosion detection model.

## Publications

### Machine learning informed predictor importance measures in maritime optical turbulence.

Appl. Opt. 59, 6379-6389 (2020)

Leveraged ensemble tree-based ML methods to gain insights into the predictive power of meteorological data on local optical turbulence, as measured by  $C_n^2$ .

### Measurement and analysis of atmospheric optical turbulence in a near-maritime environment.

IOP SciNotes 1 (2020) 02400

Collected, analyzed, and shared climactic data and  $C_n^2$  collected near the United States Naval Academy.

### Machine-learning informed macro-meteorological models for the near-maritime environment.

Appl. Opt. 60, 2938-2951 (2021)

Developed new models for predicting local  $C_n^2$  using real-time climactic data, demonstrating an improvement over prior literature models for application in the near-maritime environment.