

# Christopher J. Callaghan

+1 831 917 8527 | [cjcallaghan88@gmail.com](mailto:cjcallaghan88@gmail.com) | [cllghn](#) | [christopher-callaghan](#)

*Experienced technologist skilled in cloud application development, system integration, and IT project management. Skilled in designing scalable solutions, optimizing cloud systems, and utilizing open-source and commercial tools to achieve organizational goals.*

## Employment

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### Council of State Governments Justice Center

New York, New York

DATA SCIENCE PROGRAM DIRECTOR | 40HRS PER WEEK, MON-FRI

Jan 2023 - Present

- Oversee software engineering projects for the Justice Counts program. This includes the development of front-end applications for gathering and warehousing criminal justice data from over 100 nationwide agencies, RESTful APIs to serve to enable seamless datasharing across products and services, and building data-rich front-end applications to effectively communicate insights to policymakers at municipal, state, and federal levels.
- Set up and manage external contracts with backend developers and front-end engineers developing cloud-based solutions to advance the agenda of the Research Division.
- Started and led the Resident Corrections Analyst program which places data analysts at state departments of corrections to build their data and IT infrastructure. Enabling those agencies to develop tools in Tableau and other commercial off-the-shelf solutions to incorporate these reports into daily operations and management.
- Supervise and coordinate research and IT technical assistance activities, managing a team of data scientists and software engineers to advance the goals of the Research Division.

### Naval Postgraduate School

Monterey, California

DEPUTY DIRECTOR OF EDUCATION OPERATIONS, CORE LAB | 40HRS PER WEEK, MON-FRI

Aug 2021 - Jan 2023

- Supported federally funded research efforts for the Common Operational Research Environment, within the Defense Analysis Department, on projects focused on homeland security and defense through the lens of data science. To that end, I designed and conducted quasi-experimental open-source research on issues of great power competition, social systems, and information operations.
- Taught courses on data analysis and visualization methodologies (e.g., Chinese Strategic Social Networks, Dynamic Social Network Analysis, and Visual Analytics) for military (e.g., SOCOM, Joint Task Force North), law enforcement (e.g., San Jose Police Department, Houston Police Department, Nashville Police Department, Federal Bureau of Investigation), and international defense and security partners (e.g., Forsvarets Forskningsinstitut (Norway), Escuela Superior de Guerra del Ejercito (Peru), Universidad de las Fuerzas Armadas ESPE (Ecuador)).

### City of Seaside

Seaside, California

ADMINISTRATIVE ANALYST II | 40HRS PER WEEK, MON-FRI

Dec 2020 - Aug 2021

- Managed the administrative and financial operations for a multiyear federal grant program aimed at supporting the U.S. Army Base Realignment and Closure Office at Fort Ord, U.S. Environmental Protection Agency, and California Department of Toxic Substances Control in the monitoring of land use controls and redevelopment of lands previously owned by the U.S. Army.
- Monitored compliance with regulatory mechanisms through coordination with landowners (e.g., County of Monterey; Cities of Seaside, Del Rey Oaks, and Monterey; and local colleges), data gathering and analysis on program metrics, and communication with Federal and State regulators.

### Naval Postgraduate School

Monterey, California

FACULTY ASSOCIATE FOR RESEARCH | 40HRS PER WEEK, MON-FRI

Mar 2017 - Dec 2020

- Supported research efforts sponsored by the Department of Defense at the Common Operational Research Environment in the Department of Defense Analysis as a data scientist. These included working with multi-terabyte datasets (e.g., worldwide vessel traffic, social media) to manage and analyze data. The findings of these efforts have been published as peer-reviewed papers or compiled into technical reports for the sponsoring organizations.
- Engineered full-stack and backend software solutions for law enforcement organizations (e.g., San Jose Police Department, Sacramento County Sheriff) to include developing data extraction, transformation, and loading routines; building an HTTP API to deliver data to frontend applications, designing frontend dashboard tools; leveraging statistical techniques to provide deeper insights; and deploying these tools on a staging and production environment.

### Middlebury Institute of International Studies

Monterey, California

RESEARCH COORDINATOR | 32HRS PER WEEK, MON-FRI

Jan 2015 - Jan 2017

- Led a data analysis and program evaluation lab composed primarily of graduate students and faculty members providing government, non-profit, and social change organizations with programmatic support and analytics.
- Worked closely with each program team to prioritize, plan, and execute requirements on time. This included aiding staff with data acquisition and analysis, tracking progress across each stage of the project, and ensuring the work done was compliant with industry and internal review board standards for social science research.

## Software Engineering and Data Science Skills

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**</> Programming Languages:** R (Advanced) | Python (Advanced) | SQL (Intermediate) | JavaScript (Intermediate)

**⚙️ Application Development:** Frameworks (Django, Flask, Express.js, Next.js) | Front-end (Django, React, Boot-

strap, TailwindCSS, Shiny, Quarto) | Back-end (Flask, FastApi, Plumber) | Databases (MongoDB, MySQL, PostgreSQL, AWS RDS) | Web Servers (Apache HTTP Server, AWS EC2) | Containerisation (Docker) | Hosting (Netlify, Heroku, AWS EC2) | CI/CD (Travis CI, GitHub Actions) | Source control (Git, Github) | Testing (Jest)

🗨️ **Digital Communication:** Data analysis reporting (Jupyter, RMarkdown, Markdown, HTML) | Data visualization (ggplot2, altair, highcharts.js, plotly) | Presentation (Xaringan, deck.js)

📊 **Data Analysis:** Exploratory data analysis (data.table, pandas, tidyverse, SQLAlchemy, SQL) | Geospatial analysis (sf, geopandas, QGIS) | Machine learning (scikit-learn, pyTorch) | Natural Language Processing (spacy) | Network analysis (igraph, NetworkX)

## Education

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### Middlebury Institute of International Studies

MASTER OF PUBLIC ADMINISTRATION

Monterey, California

2016

### University of California, Santa Cruz

BACHELOR OF SCIENCE, BIOLOGY

Santa Cruz, California

2012

## Consulting

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### Sam Houston State University - Institute for Homeland Security

EDUCATIONAL CONSULTANT

Huntsville, Texas

Dec 2022 - Aug 2023

- Designed the curriculum for a five-day training on social network analysis for homeland security practitioners. Built all materials used in the course for internal and external distribution.

### Community Alliance for Safety and Peace

DATA ANALYST

Salinas, California

Jan 2016 - May 2016

- Developed a KPI interactive dashboard for a network of 64 partners (public, private and non-profit sectors) dedicated to reducing violence and building a better future for the children of Monterey County.

## Public Lectures and Conference Presentations

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- *Understanding Dark Networks*, Combating Terrorism Technical Support Office Counter Tunnel Working Group Workshop, San Diego, California, September 2019.
- *Analytic Methods for Strategic Risk Assessment, Leveraging Big Data and Social Media*, Institute of Strategic Studies - Naval Postgraduate School Academic Workshop, Ulaanbaatar, November 2018.
- *Geospatial and Social Network Causes of Group Violence*, 1st North American Social Networks Conference (NASNC), Washington, D.C., August 2018.

## Publications

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### Contreras, O., Jones, N., Weisz Argomedeo, D., Sullivan, J., Callaghan, C.

THE USE OF SIMILARITY-BASED ALGORITHMS TO PREDICT LINKS IN MEXICAN CRIMINAL NETWORKS

Rice University's Baker Institute for  
Public Policy

2023

### Callaghan, C., Schroeder, R., and Porter, N. W.

MAPPING GRAY MARITIME NETWORKS FOR HYBRID WARFARE

Center for International Maritime  
Security

2020

### Porter, N. W., Schroeder, R., Callaghan, C., Barreto, A., Bussell, S., Young, B., Loewer, M., Funk, D., von Eiff, J.

MAPPING GRAY MARITIME NETWORKS

Connections

2019

## Honors and Awards

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2019 Winner 2019 Annual Defence Innovation Challenge

NATO NCI Agency