Christopher Burch

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# Senior Data Scientist | Turning Complex Data into Actionable Insight

Over 15 years of experience leading advanced analytics projects across public health, logistics, financial analysis, military special operations, and risk management. Skilled in machine learning, complex systems modeling, and R/Python development. Known for delivering actionable insights and building tools used across large-scale federal initiatives.

# Professional Experience

MITRE Corporation -Lead Data Scientist

Sep 2022 – Jul 2025

* Led development of ML/AI models for public health, federal workforce equity, and operations analysis across multiple domains.
* Co-PI for a VA-focused research initiative improving disability claims processing using predictive analytics and human-centered modeling.
* Core epidemiology modeling expert on the DARPA ASKEM program; evaluated automated modeling systems and contributed to strategic modeling approaches.
* Built reusable R packages for visualization and data workflows; tools adopted across internal teams.
* Developed agent-based models and system dynamics simulations for issues like whale strike reduction and hoof-and-mouth disease response.
* Mentored junior scientists in modeling, simulation, and statistical best practices.

Grant Leading Technology -Senior Data Scientist & Consultant

Aug 2018 - Sep 2022

* Built and maintained automated dashboards for senior agency personnel.
* Developed FAA-wide recall tracking system, reducing recall backlog by 90%.
* Created open-source R packages to streamline federal API data workflows.
* Proposed business process improvements through systems modeling.

Cogentis Therapeutics -Cofounder / Chief Data Officer

Jan 2015 - Jul 2018

* Built statistical power models and financial forecasts to guide biotech R&D.
* Defined data standards, documentation, and visualization protocols.
* Developed data-driven financial models which reduced investor risk and controlled experimental risk for increased stability in the startup ecosystem.
* Conducted statistical power analysis and built financial forecasts to guide biotech R&D.
* Defined data standards, documentation, and visualization protocols.
* Primary budget facilitator; ensured that budget met requirements for operational performance and research risk profile.
* Raised dilutive and non-dilutive capital from investors and grant-making bodies.

US Army National Guard -Advanced Skills Instructor

July 2009 – Nov 2011

* Developed a metrics‑based training evaluation system to A/B test multiple techniques.
* Senior CQB/Close Combat Instructor for US Army, US Navy, and NATO forces in close quarters combat (CQB), fighting in built‑up areas (FIBU), advanced urban combat (SFAUC), and advanced special operations (ASO).

US Army – Senior Special Forces Communications Sergeant

*July 2004 – July 2009*

* Developed training and provided instruction to more than 800 allied military and police personnel in communications, special operations, and small unit tactics.
* Utilized advanced technical and statistical techniques to analyze networks and plan counter-IED operations.

# Technical Skills

Languages: R, Python, Julia, SQL, M, VBA

Tools: Git, Shiny, Spark, Tableau, Excel, Linux, Agile/Scrum, Microsoft Cloud, Google Cloud

Core Expertise: Machine Learning (ML/AI), Deep Learning (graph models, LLMs, CNN, RNN, neural networks), Simulation (genetic algorithms, agent-based models, Monte Carlo methods), Statistical Analysis (inference, prediction, causal modeling), Complex Systems Modeling, Bayesian methods

# Education

MBA, Johns Hopkins University, 2015. Enterprise Risk Mgmt. & Marketing

BA, Arizona State University, 2013. Organizational Management

MicroMasters, Massachusetts Institute of Technology, 2017. Data, Economics, and Development of Policy (DEDP)

# Certifications

IBM Data Science Certification, 2025. IBM

Lean Six Sigma Green Belt, 2018. Grant Leading Technology

Data Science Certification, 2015. Johns Hopkins University