

Dr. Jericho Cain, PhD

+1-301-346-4864 | jericho.cain@gmail.com | jerihocain.com

 [jericho-c-96095287](https://www.linkedin.com/in/jericho-c-96095287) |  [jericho-cain](https://github.com/jericho-cain) |

Vancouver, WA - 98683, USA

OBJECTIVE

Seeking a challenging leadership position in applied artificial intelligence and data science to leverage my expertise in deep learning, interpretability, and scalable system design. Aiming to contribute to innovative, high-impact projects at the intersection of AI, physics-inspired modeling, and real-world problem-solving across domains such as cybersecurity, healthcare, physics, and environmental forecasting.

EXPERIENCE

- **Adobe**  11/2022 – Present
Senior Staff Data Scientist Remote
 - Designed, led, and implemented the development of a modern User and Entity Behavior Analytics (UEBA) system leveraging an LSTM Autoencoder architecture integrated with LLM interpretability and Human Risk Management (HRM) systems.
 - Built an agentic AI ecosystem orchestrating detection alerts and ticket creation, enabling end-to-end automation of incident response.
 - Developed deep learning models for predicting malicious activity in EDR data, contributing to proactive cybersecurity threat detection and risk reduction.
- **ConcertAI**  10/2020 – 11/2022
Principal Data Scientist Remote
 - Served as principal architect of the machine learning layer for the automated cohort-builder pipeline used in clinical trial data curation.
 - Designed and deployed AI Core, a suite of tools for knowledge base management, unit standardization, model evaluation, model store, and deployment.
 - Implemented interpretable LightGBM models with SHAP analysis to support transparency for pharma clients including Pfizer and Moderna, accelerating COVID-19 trial cohort development.
- **Change Healthcare**  08/2017 – 10/2020
Senior Data Scientist Emeryville, CA
 - Built and deployed deep learning models to automatically audit medical records, removing unsupported ICD-10 codes based on NLP text analysis.
 - Utilized TensorFlow, PyTorch, and Spark for large-scale data processing, significantly improving audit accuracy and efficiency.
 - Enhanced auditor training through AI-driven feedback loops after demonstrating model accuracy exceeding human reviewers.
- **Cray Inc.**  01/2016– 08/2017
Data Scientist II Seattle, WA
 - Solved diverse problems showcasing high-performance computing capabilities including baseball analytics, cybersecurity, and node failure prediction.
 - Designed ConvLSTM networks for near-term precipitation prediction at neighborhood scales, resulting in a peer-reviewed publication and presentation at NVIDIA's GPU Technology Conference.
 - Delivered internal workshops on machine and deep learning for sales and presales teams, earning Cray's Spotlight on Success Award.
- **U.S. Army Research Laboratory**  08/2013– 12/2015
Research Physicist Adelphi, MD
 - Conducted theoretical and computational research in atmospheric acoustics and turbulence.
 - Adapted ocean acoustics Green's function methods to atmospheric turbulence modeling, advancing sound-propagation prediction accuracy.
 - Contributed to the theory of statistical moments of acoustic signals in turbulent media using Python-based simulations.
- **University of Mississippi**  08/2006 – 08/2013
Graduate Researcher and Instructor Oxford, MS
 - Participated in the LIGO project, performing data analysis, detector characterization, and Astrowatch operations during the O1 science run.

- Developed a large-eddy simulation of atmospheric dynamics over terrain to study turbulent gust effects and ground-level pressure responses for early-warning wind turbine detection.
- Taught calculus-based and algebra-based physics, astronomy, and associated laboratories; mentored ROTC cadets and undergraduate students.
- **Georgia State University** [🌐] 08/2004 – 08/2006
Undergraduate Lab Instructor Atlanta, GA
 - Taught algebra-based physics and physical science laboratory courses; supported curriculum delivery and student mentorship as an undergraduate instructor.
- **Portland Community College** [🌐] Ongoing
Adjunct Physics Instructor (Weekend Teaching) Portland, OR
 - Teach algebra-based physics with integrated laboratory sessions to pre-medical students.
 - Incorporate discussions of advanced physics concepts and emerging roles of AI and deep learning in scientific discovery.

EDUCATION

- **University of Mississippi** [🌐] August 2007 – May 2013
Ph.D. in Physics Oxford, MS, USA
 - Dissertation research focused on large-eddy meteorological modeling to simulate complete atmospheric systems and develop ground-based detection algorithms for wind gusts.
 - Conducted research with the LIGO collaboration at Hanford, WA and Livingston, LA, including interferometer operations and data analysis.
- **Georgia State University** [🌐] August 2003 – May 2007
Bachelor of Science in Physics Atlanta, GA, USA
 - Received the Robert H. Hankla Award for Outstanding Senior Physics Student.
 - Served as an undergraduate laboratory instructor for algebra-based and physical science courses.

SELECT PROJECTS

- **Advanced Behavior Based Analytics: Modern UEBA powered with LLM** 2025
Tools: Python, Spark, Pytorch
 - Technical Lead
 - Developed a multivariate time series autoencoder to detect anomalous behavior across systems.
 - Integrated LLM interpretability using model feature attribution and associated data.
 - HRM integration for prioritization overlay.
- **CWT-LSTM-AE-Grav-Wave: Template Free Gravitational Wave Detector** 2025
Python, Pytorch, GWOSC, GWYPY, PY [🌐]
 - Independent Research
 - Used publicly available LIGO data.
 - Used continuous wavelet transforms (cwt) of signal and noise segments.
 - Trained an LSTM based autoencoder on the cwt noise segments.
 - Detected gravitational wave events with F1-score 96.6%
 - Paper listed in references
- **Prioritization of CrowdStrike EDR Data: Overlays Adobe Environment Specific Classifications** 2024
Tools: Python, Spark, Pytorch
 - Technical Lead
 - CrowdStrike EDR command line strings are overwhelmingly false positives as it is a general product for broad environmental application.
 - Using historical closures on CrowdStrike notables, built a transformer based nlp approach for prioritizing notables so that malicious activity efficiently surfaces.
 - Achieved a 91% F1-Score.
- **Impossible Travel in OKTA Logs** 2023
Tools: Python, Spark, Pytorch
 - Used Autoencoders to establish baseline behavior in OKTA activity.
 - Detected travel anomalies triaged by anomalies in non-travel fields (i.e. device, time)
 - Presented at the Databricks "DATA and AI Summit"
- **Machine Learning Layer for Digital Trial Solutions: ML Powered Cohort Generation** 2021
Tools: Python, Spark, Pytorch
 - Technical Lead

- Principle designer of this ML layer.
 - Used LGBM and SHAP feature attribution, to predict Cohort interview of patients with data gaps based on present data trends.
 - This system “fills in the blanks” for medical requirements that aren’t completely present based on their medical charts, speeding up the cohort creation process.
- **ICD-10 Audit Automation** 2020
Tools: Python, Spark, Pytorch
- Used machine and deep learning to build models to read medical charts to justify removing medical coding.
 - Model still used today to catch unjustified ICD-10 codes.
 - Model has outperformed auditors and triggers retrainings.
 - Built a an annotation platform to minimize interruptions of auditor workflow in order to automate the feedback loop.
- **Precipitation Nowcasting** 2017
Tools: Python, Spark, Pytorch
- Used LSTM autoencoders to build models to predict the spatial-time evolution of precipitation systems on neighborhood and minute scales.
 - Overcame altitude limitations found in published papers.
 - Published, shown below, and presented at NVIDIA conference.

SELECT PUBLICATIONS

C=CONFERENCE, J=JOURNAL, S=IN SUBMISSION, T=THESIS

- [S.1] Jericho Cain (2025). **Template-Free Gravitational Wave Detection with CWT-LSTM Autoencoders: A Case Study of Run-Dependent Calibration Effects in LIGO Data**. Manuscript submitted for publication in *Classical and Quantum Gravity*. arXiv:2509.10505. DOI: 10.48550/arXiv.2509.10505
- [J.1] Jericho E. Cain, Hayden Beadles, Karthik Venkatesan (2024). **Anomaly Detection in OKTA Logs using Autoencoders**. *CoRR*, abs/2411.07314.
- [C.1] Alexander Heye, Karthik Venkatesan, Jericho Cain (2017). **Precipitation Nowcasting: Leveraging Deep Recurrent Convolutional Neural Networks**. In *Proceedings of the CUG 2017 Workshops*, pp. 1–8.
- [C.2] Jericho Cain (2016). **Effects of turbulence on acoustic impulses propagating near the ground**. In *Proc. French Acoustics Congress & Conference on Vibrations, Shocks, and Noise*. Conference presentation, Apr 11, 2016.
- [J.2] Vladimir E. Ostashev, D. Keith Wilson, Sandra L. Collier, Jericho Cain, Sylvain Cheinet (2016). **Cross-frequency coherence and pulse propagation in a turbulent atmosphere**. *Journal of the Acoustical Society of America*, Vol. 140, Issue 1, pp. 678. DOI: 10.1121/1.4959003
- [C.3] Jericho E. Cain (2015). **Statistical moments of a wideband acoustic signal**. *Proceedings of Meetings on Acoustics*, Vol. 21.
- [J.3] LIGO Scientific Collaboration (incl. Jericho Cain) (2010). **Methods for Reducing False Alarms in Searches for Compact Binary Coalescences in LIGO Data**. *Classical and Quantum Gravity*, 27(16):165023. DOI: 10.1088/0264-9381/27/16/165023
- [J.4] Roger Waxler, Kenneth E. Gilbert, Jericho Cain (2008). **The Radiation of Microbaroms from Isolated Hurricanes over Water**. *AIP Proceedings*, 1022(1), 417–427. DOI: 10.1063/1.2838136
- [C.4] Jericho Cain, Sandra Collier, Vladimir Ostashev, D. Keith Wilson (2014). **Spatial coherence function for a wideband acoustic signal**. *Journal of the Acoustical Society of America*, 135(4_Supplement), 2382–2382.
- [C.5] Jericho E. Cain, Sandra L. Collier, Vladimir E. Ostashev, David K. Wilson (2015). **Signal coherence of broadband sound propagation through a refractive and turbulent atmosphere**. *Journal of the Acoustical Society of America*, 137(4_Supplement), 2224–2224.
- [C.6] Sandra L. Collier, Jericho E. Cain, John M. Noble, David A. Ligon, W. C. Kirkpatrick Alberts, Leng K. Sim (2015). **Green’s function retrieval for atmospheric acoustic propagation**. *Journal of the Acoustical Society of America*, 138(3_Supplement), 1754–1754.
- [C.7] Jericho E. Cain, Sandra L. Collier, John M. Noble, David A. Ligon, W. C. K. Alberts, Leng K. Sim (2016). **Inverse methods for Green’s function retrieval**. *Journal of the Acoustical Society of America*, 139(4_Supplement), 1985–1985.
- [C.8] Jericho Cain, Richard Raspet (2011). **Detection of turbulence aloft by infrasonic wind noise measurements on the ground**. *Journal of the Acoustical Society of America*, 130(4_Supplement), 2437–2437.
- [T.1] Jericho Cain (2013). **Large Eddy Simulation of Surface Pressure Fluctuations Generated by Elevated Gusts**. Ph.D. thesis, University of Mississippi. Available at: egrove.olemiss.edu/etd/771/.

TECHNICAL SKILLS

- **Programming Languages:** Python, C++, Fortran, R, MATLAB, Mathematica
- **Deep Learning & Machine Learning Frameworks:** PyTorch, TensorFlow, Scikit-learn, MLFLOW, PYWavelets, GWPpy
- **Big Data & Distributed Computing:** Apache Spark, Hadoop (familiar), parallelization on HPC systems
- **DevOps & Version Control:** GitHub, GitLab, Jenkins, Artifactory, Docker, Kubernetes
- **Data Science & Visualization Tools:** Matplotlib, Pandas, NumPy, SciPy, Seaborn, Jupyter
- **Cloud & Deployment:** AWS, Azure (familiar), REST APIs, containerized model serving
- **Mathematical & Statistical Tools:** Optimization, Bayesian Inference, Numerical Methods, Statistical Modeling, Signal Processing
- **Specialized Domains:** Physics, Atmospheric Modeling, Acoustics, Gravitational Wave Analysis, Astronomy, Cybersecurity
- **Research & Teaching Skills:** Scientific Writing, Mentorship, Curriculum Design, Technical Communication, Data Ethics, Education
- **Emerging Areas:** Large Language Models (LLMs), Agentic AI, Interpretability, Explainable AI (XAI)

AWARDS AND HONORS

- **Spotlight on Success Award** 2017
Cray Inc. 
 - Recognition for delivering company-wide instruction on machine and deep learning applications, enabling the sales and pre-sales teams to engage more effectively with technical clients.
- **Robert H. Hankla Award** 2007
Georgia State University 
 - Presented annually to the outstanding senior physics student for academic excellence and research contributions.

LEADERSHIP EXPERIENCE

- **Senior Staff Data Scientist and Technical Lead** 2021 – Present
Adobe 
 - Serve as technical lead and architect for the design and implementation of Adobe's next-generation User and Entity Behavior Analytics (UEBA) platform, integrating LSTM-based anomaly detection with large language model interpretability.
 - Direct a multidisciplinary team spanning data science, cybersecurity, and engineering to deliver scalable detection pipelines that inform real-time incident response and HRM systems.
 - Drive adoption of agentic AI architectures within Adobe's security organization, influencing roadmap strategy and model deployment practices.
 - Mentor junior scientists and engineers, fostering applied research excellence and reproducible machine learning standards.
- **Principal Data Scientist and Technical Lead** 2019 – 2021
ConcertAI 
 - Principal tech lead of the ML layer of digital trial solutions - ConcertAI's automated cohort builder.
 - Led the creation of "AI Core," the machine learning backbone powering ConcertAI's automated cohort builder, encompassing model development, evaluation, and deployment for clinical trial data curation.
 - Collaborated directly with pharmaceutical partners such as Pfizer and Moderna to accelerate COVID-19 cohort assembly through interpretable LightGBM models with SHAP-driven transparency.
 - Supervised a team of data scientists and ML engineers, introducing best practices for feature governance, model validation, and cross-domain data integration.
 - Championed reproducibility and continuous deployment frameworks that scaled AI solutions to production environments.
- **Technical Lead, Machine Learning** 2017 – 2019
Change Healthcare 
 - Advanced from individual contributor to technical lead for deep learning initiatives aimed at automating medical record audits.
 - Oversaw model development using TensorFlow, PyTorch, and Spark to identify unsupported ICD-10 codes, significantly improving audit accuracy and reducing manual review time.
 - Introduced model interpretability frameworks and internal tooling that improved stakeholder trust and shaped internal auditor training programs.

CERTIFICATIONS

- | | |
|---|---------|
| • Deep Reinforcement Learning Nanodegree | 12/2018 |
| • Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization | 09/2017 |
| • Neural Networks and Deep Learning | 09/2017 |
| • Machine Learning | 05/2017 |

ADDITIONAL INFORMATION

Languages: English (Native)

Interests and Hobbies: Astrophotography, General Relativity, Quantum Field Theory, Chess, Woodworking