135 Cobham Ln.
Sun Prairie, WI 53590
+1 (484) 893-9627
info@ericwait.com
ericwait.com
ericwaitinfo
ericwait

Eric Wait, PhD

Professional Summary

Principal Data Scientist combining technical depth with human-centered leadership. Built and led teams across academic research (HHMI Janelia), startup environments (Elephas Biosciences), and 21 years of military service, developing expertise in cross-functional collaboration, mentorship, and strategic alignment. Translates complex technical capabilities into accessible guidance for diverse stakeholders while delivering production-ready imaging and data analysis systems using GPU-accelerated pipelines, ML/AI, and real-time processing. Approaches challenges with curiosity and strategic thinking, balancing optimization with knowing when to pivot for greater impact.

Leadership & Collaboration

Collaboration

Advised 170+ international scientists annually on experimental design and data collection strategies, building relationships across cultural, linguistic, and time-zone differences to maximize scientific impact within critical 2-week experimental windows.

Coordinated across biology, engineering, and computational teams to translate research needs into technical solutions, bridging domain expertise gaps to deliver cohesive outcomes.

Managed blended teams of full-time employees and contractors, adapting motivation and communication strategies to diverse working relationships and business constraints.

Communication

Communicated directly with senior leadership – base commanders and Pentagon officials – in mission-critical scenarios, delivering clear, actionable information under high-pressure conditions.

Bridged strategy and execution by translating business objectives into technical roadmaps, ensuring daily work remained aligned with long-term company vision.

Mentorship

Trained and mentored personnel in high-stakes environments, instilling composure and judgment needed to make real-time decisions during critical operations.

Led software development team through novel microscopy system integration, providing technical mentorship while balancing performance goals with cost and timeline constraints.

Strategy

Connect organizational objectives to tactical solutions by understanding the "why" behind challenges, identifying optimal approaches, whether internal development, delegation, or external partnerships.

Multiplied impact through delegation and mentorship, recognizing when to leverage team strengths over individual technical execution.

Team Dynamics

Applied empathy, active listening, and conflict resolution to build high-functioning, diverse teams across military, academic, and startup environments.

Professional Skills

Extensive experience applying machine-level programming, GPU acceleration, hardware integration, and modern development workflows to advanced imaging modalities and scientific analysis environments.

Languages

Expert: C, C++, MATLAB, CUDA, DirectX; **Proficient:** Python, C#, SQL, Java

Familiar: OpenGL, LISP, Perl, Mathematica

Data Systems

SQL databases, distributed computing (OpenMP, cluster scheduling), machine learning (clustering, classification, SVM), deep learning (YOLO, neural networks), statistical analysis (hypothesis testing, Bayesian), real-time streaming, data quality frameworks

DevOps	Git, CMake, Docker, AWS (EC2), Azure (compute, pipelines), GitHub Actions, CI/CD workflows, Conda, vcpkg, NuGet
Tools	VSCode, Visual Studio, Jupyter, Jira, Emacs/Vi, Azure DevOps, Copilot, ChatGPT, Claude
Hardware	Embedded systems, custom workstation/server builds, RAID/NAS systems, multi-CPU/GPU setups, redundant architectures, advanced and stereoscopic display arrays
Vis & Design	Blender, Figma, VTK, Photoshop, Premiere, Illustrator, Imaris, Dragonfly, visual pipeline planning

Work Experiences

2021–2025 **Principal Data Scientist**, *Elephas Biosciences*, Madison, WI

Architected GPU-accelerated data acquisition and processing for real-time analysis; led cross-functional teams to deliver high-performance solutions integrating hardware control, signal processing, and analytical workflows.

- Applied GPU-accelerated image processing and device control systems to fluorescence and bright-field microscopy workflows; enabled multi-site reproducibility in oncology research.
- Developed and deployed analysis pipelines integrating ML classifiers for biomarker detection, increasing diagnostic confidence in live-tissue imaging experiments.
- Directed cross-functional teams spanning biology, engineering, and software, translating research needs into robust technical solutions adopted across multiple lab sites.
- Instituted validation workflows and disciplined development practices (Git workflows, CI/CD, automated testing) ensuring reproducibility, regulatory alignment, and stakeholder consensus.
- Collaborated with marketing and finance teams to align technical work with strategic goals.
- Developed training programs ensuring consistent data collection practices.
- Brought financial and strategic awareness to technical decision-making.

2017–2021 **Data Scientist, Advanced Imaging Center**, *HHMI, Janelia Research Campus*, Ashburn, VA

Applied GPU optimization and signal processing to massive time-lapse datasets; built scalable processing infrastructure spanning laptops to HPC clusters.

- Applied DirectX and CUDA pipelines to fluorescence and multiphoton microscopy data, enabling high-fidelity visualization and preprocessing for large-scale biological studies.
- Developed feature extraction and tracking workflows for terabyte-scale datasets, improving robustness and accuracy of biological interpretations.
- Guided international scientists through experimental design and data collection within critical timelines.
- Bridged biology, engineering, and computational expertise to deliver integrated solutions.
- Provided constructive feedback on visitor proposals to align expectations with capabilities.

2015–2019 **High Performance Computing Consultant**, *Winter Wait Consulting LLC*, Sterling, VA

Developed and deployed optimized solvers for large-scale transportation problems; trained teams across technical and strategic domains.

- Applied C, C++ and Python optimization routines to transportation network models, enabling faster scenario analyses and improved decision-making for real-world logistics challenges.
- Collaborated with mathematicians to integrate novel algorithmic approaches, improving solution accuracy and applicability in operational research contexts.
- Advised senior leadership on solution architecture and HPC resource allocation for global logistics modeling.
- Established disciplined development practices across the team, including code review standards, version control workflows, and testing frameworks, improving code quality and team collaboration.
- Mentored developers in solver design, memory management, and tuning for distributed systems.

1998–2019 **Command Post Superintendent**, *Air National Guard*, Minneapolis, MN

Held **Top Secret** clearance. Led mission-critical communications and personnel training in high-pressure operational environments spanning 21 years of service.

- Orchestrated real-time information flow across command post sections during operations, coordinating between stakeholders with diverse priorities to ensure mission success.
- Communicated directly with base commanders and Pentagon officials in high-pressure scenarios, delivering clear, actionable intelligence and operational updates.
- Trained and mentored teams of personnel in high-stakes decision-making, instilling composure and judgment needed for real-time operations under pressure.
- Facilitated coordination between organizational sections, surfacing critical information to leadership and ensuring alignment across complex operational requirements.

2012–2017 **Ph.D. Research Assistant**, *Drexel University*, Philadelphia, PA, Dr. Andrew Cohen's lab

2011–2012 **M.S. Research Assistant**, *University of Wisconsin*, Milwaukee, WI, Dr. Andrew Cohen's lab

Education

2019 **Ph.D. in Electrical and Computer Engineering**, *Drexel University*, Philadelphia, PA
Dissertation: *5D GPU Accelerated Analysis, Visualization, and UI for Biological Microscopy Applications*. Developed signal-processing and feature extraction algorithms in C, C++, CUDA, DirectX, MATLAB, and Python to analyze large-scale microscopy datasets; enhanced workflows for accurate, reproducible biological image interpretation.

2012 **M.S. in Computer Science**, *University of Wisconsin*, Milwaukee, WI
Thesis: *Visualization and Correction of Auto-Segmentation, Tracking, and Lineage of Stem Cells from Images*. Applied low-level algorithms in C, C++ and MATLAB for multidimensional image analysis; improved UI tools for manual correction and validation of segmentation/tracking results.

2010 **B.S. in Computer Science**, *University of Wisconsin*, Milwaukee, WI

Patents

2019 Cohen, A., Dion, G., Winter, M., **Wait, E.**, Koerner, M., *Finger-worn Device with Compliant Textile Regions, US 10,466,784; Wearable Robotic Devices, US 10,248,200*

2016 Bailey, T., Colletti, B., **Wait, E.**, King, A., Gandhi, B., *Parallel Processing for Solution Space Partitions, US 20160335568A1*

Publications

Technical publications demonstrating expertise in GPU acceleration, real-time data processing, and high-performance computing systems. Full list of 25+ pubs at `https://ericwait.com/pubs`

2024 Liu C. et al., **Wait E.**, *Assessing cell viability with dynamic optical coherence microscopy*, ***Biomedical Optics Express***

2023 Sinclair R. et al., **Wait E.**, *Spatiotemporal dynamics of cell plate development during plant cytokinesis*, ***Molecular Biology of the Cell***

2021 Moore A. et al., **Wait E.**, *Actin cables organize mitochondrial networks in mitosis*, ***Nature***

Zhao X. et al., **Wait E.**, 3D image analysis of the ventricular-sub-ventricular zone stem cell niche, ***Stem Cell Reports***

2020 **Wait E.,** Reiche M., Chew T., *Hypothesis-driven quantitative fluorescence microscopy*, ***JCS***

2019 **Wait E.,** Winter M., Cohen A., *Hydra Image Processor: 5-D GPU image analysis library with MATLAB/Python wrappers*, ***Bioinformatics***

Aaron J. et al., **Wait E.**, *Practical considerations in particle and object tracking and analysis*, ***Current Protocols in Cell Biology***

Winter M. et al., **Wait E.**, *Separating touching cells using pixel-replicated elliptical shape models*, ***IEEE Transactions on Medical Imaging***

2017 Valm A. et al., **Wait E.**, *Systems-level spectral imaging to reveal the organelle interactome*, ***Nature***

2014 **Wait E. et al.**, *Visualization and correction of automated segmentation, tracking, and lineaging in 5-D stem cell image sequences*, ***BMC Bioinformatics***

2011 Winter M. et al., **Wait E.**, Vertebrate neural stem cell segmentation, tracking, and lineaging with validation/editing, ***Nature Protocols***

Awards & Honors

2015 **Koerner Family Fellowship**, *Drexel University*, Philadelphia, PA

2014 & 2019 **Meritorious Service Medal**, *United States Air Force*, Minneapolis, MN
Highest peacetime award given to senior non-commissioned officers.

2020-2021 **Review Editor**, *Frontiers in Bioinformatics*

2020-2021 **DEI Committee Member**, *HHMI President's Office*

2019-2020 **Webinar Coordinator and Technical Support**, *Imaging Africa*

2018-2021 **Crisis Action Team Advisor**, *Janelia Research Campus*