Hailey A. Reed

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Education

University of Connecticut Storrs, CT
Bachelor of Science, Major in Computer Science, Minor in Mathematics • GPA: 3.65/4.0 2022-2026
• Concentration in Computational Data Analytics • Honors Program • UConn STEM Scholar Community • Dean's List.
• Relevant Coursework: Graduate-Level Machine Learning, Big Data Analytics, and Artificial Intelligence.

Research Experience

Undergraduate Research Assistant Storrs, CT
Project: *DeltaSegment: Multifidelity Medical Image Segmentation via Change Detection* Jan 2025 – Present
Advisor: Dr. Qian Yang | Scientific & Computational Machine Learning Laboratory (SciMaLL)
• Co-developed DeltaSegment, a multi-fidelity, change-detection–based Semi-Siamese U-Net framework that improves small-data medical image segmentation by leveraging high–low fidelity image pairs generated via color quantization.
• Co-authored a paper accepted to IEEE ISBI 2026, contributing to model design, experiments, and quantitative analysis.

Undergraduate Research Assistant Storrs, CT
Project: *GDP Nowcasting using FRED-MD Macroeconomic Indicators* May 2025 – Present
Advisor: Professor Joseph Johnson
• Reproduced the GDP nowcasting framework from Németh & Hadházi (2023), implementing benchmark neural architectures (MLP, 1D-CNN, Elman RNN, LSTM, GRU) on the FRED-MD macroeconomic panel.
• Built a regime-switching ensemble that identifies macroeconomic conditions and selects the optimal model, with full walk-forward validation, feature engineering, and a Plotly Dash dashboard for interpretability.

Publications

Hailey A. Reed, Yushuo Niu, Qian Yang. "DeltaSegment: Multifidelity Medical Image Segmentation via Change Detection," Accepted to 2026 IEEE 23rd International Symposium on Biomedical Imaging (ISBI).

Leadership & Innovation

Entrepreneurial Lead – Accelerate UConn (NSF I-Corps) Cohort 32 Hartford, CT
UConn Center for Entrepreneurship & Innovation June 2025 – July 2025
• Selected as Entrepreneurial Lead for UConn's NSF I-Corps cohort, translating a lab-developed AI change-detection model into an industrial defect-inspection product called LitheVision through customer discovery, stakeholder outreach, and competitive landscape analysis.
• Conducted TAM/SAM/SOM market sizing, business-model development, and product-market validation to evaluate commercialization and feasibility and identify early adopter segments for AI-driven manufacturing inspection tools.

Projects

AlarmCast – Senior Design Project (Team Lead) Sept 2025 – Present
• Leading a 5-member team developing a low-cost Raspberry Pi smoke/CO alarm listener and full backend–mobile pipeline for real-time alerts and verification, using a Kanban workflow to coordinate hardware, backend, and mobile integration.
Personal Portfolio Website – https://haileyannreed.github.io/portfolio/ Mar 2025
• Curated and deployed a personal site showcasing projects in AI, ML, computer vision, and quantitative finance.

Technical Skills

ML & CV: PyTorch, TensorFlow, Scikit-Learn, NumPy, Pandas • Transformers, RNN/LSTM/GRU • U-Net, Siamese/Semi-Siamese Models, Data Augmentation
Programming & Tools: Python, SQL, C, Haskell, Git, LaTeX, SQLite, REST APIs, Security (Argon2), HPC (UConn)

Work Experience

BEACH (Belonging, Engagement, Affinity Computer Hangout) Lifeguard Aug 2024 - Present
UConn School of Computing, Storrs, CT
• Tutoring undergraduate students in computer science fundamentals, organizing faculty-student engagement events.