

Seaqueue Cheng

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Education

Northeastern University, Portland, ME	Sept. 2024 – May 2026 (expected)
MS in Artificial Intelligence: NLP, Machine Learning, Algorithms	
Northeastern University, Boston, MA	Sept. 2020 – May 2024
BS in Computer Science: OOD, Network and Distributed Systems, Computer Systems, Programming Language, Web Dev	

Skills

Languages: Python, Java, Ruby, JavaScript, TypeScript, HTML & CSS, Racket, PostgreSQL, MongoDB, Lean, C, Assembly
Frameworks: Pytorch, OpenCV, Roboflow, NumPy, Pandas, Plotly, CVAT, React, Overleaf
Software: MacOS, GitHub & GitLab, VS Code, Jupyter Notebook, IntelliJ, PyCharm

Publication

Michael Massone, **Qian Cheng**, Bruce Allen Maxwell
“Illumination Spectral Ratio Prediction with Physics-Based Augmentation.” **CVPR 2026 (under review).**

Research Experience

Illumination Spectral Ratio Prediction with Physics-Based Augmentation – NEU: Demo on GitHub	Sept. 2025 – Present
<ul style="list-style-type: none">Improved pixel-wise ISD map estimation accuracy by designing a customized MambaVision + FPN like dense-regression model, achieving >0.97 SSIM and ~1.6° angular error across 12 configurationsBuilt a modular PyTorch training and evaluation pipeline with benchmarks to validate model performance on augmented and un-augmented test sets.Built the visualization tool that removes the shadows in 16-bit linear images using ISD estimation.	
Automated Herring Fish Detection & Counting -- NEU & MIT Sea Grant: Demo on GitHub	Sept. 2024 – Present

• Preprocessed 162K fish images including filtering, annotation, augmentation, etc.
• Generated 5k synthetic fish images with **SAM2** models on different backgrounds.
• Fine-tuned pre-trained **Yolov11** on HPC to 90%+ accuracy on Herring vs non-Herring classification.
• Combined Yolov11 **Bot-Sort tracking** with **customized counting algorithm** to count the fish in video inputs.

Multispectral Image (MSI) Segmentation of Blueberry Genotypes – NEU: [Demo on GitHub](#) Feb. 2025 – May 2025
• Preprocessed multi-spectral blueberry field images collected by MicaSense including alignment and annotation.
• Analyzed various model performance on MSI segmentation including SAM, U-NET, YOLO11, and PSFormer.

Industry Experiences

AI Research and Development -- cPort Credit Union, Maine:	Aug. 2025 - Present
<ul style="list-style-type: none">Built a live translation website between English and 6 targeted languages using Azure Speech Services, Foundry and Blob storage. Fine-tuned Azure speech models with cPort knowledge base.	
Full-stack Developer (Co-op) -- Global Nursing Talent Inc:	Aug. 2023 – Dec. 2023
<ul style="list-style-type: none">Built a Ruby website from scratch to production, integrating PostgreSQL, AWS, and Bootstrap to deliver a bilingual (English/Spanish) recruitment platform for international markets in Mexico, Singapore, and Chile.Designed and implemented multi-login dashboards, progress tracking, and admin tools for candidate search, filtering, and access control, streamlining the company's hiring process.	

Full-stack Developer (Co-op) -- Seminaut Inc, San Marcos, TX: July 2022 – Dec. 2022
• Upgraded the website with event listings, pagination, badge system, and advanced filtering, integrating user input with a SQLAlchemy database via API calls. **Promoted to group leader of 9 teammates.**

Selected Projects

Transformer Suite (NLP + Vision): Tasks with Transformer on GitHub	
<ul style="list-style-type: none">Built transformer-based NLP & ViT models from scratch for tasks including translation, summarization etc.	
OpenCV Image Processing:	

• Learned basic image processing techniques, noise reduction, geometric transformations, etc.
• Built a LeNet-5 model from scratch and trained it on the MNIST dataset to classify handwritten digits.