

# Seaqueue Cheng

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## Education

<b>Northeastern University</b> , Portland, ME	Sept. 2024 – Present
Major in <b>MSAI</b> : Coursework: NLP, Machine Learning, Algorithms	
<b>Northeastern University</b> , Boston, MA	Sept. 2020 – May 2024
Major in <b>BSCS</b> : Coursework: OOD, Network and Distributed Systems, Computer Systems, Program 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

## Research Experience

<b>Shadow Removal via Illumination Spectral Direction(ISD) Estimation – NEU</b> : <a href="#">Demo on GitHub</a>	Sept. 2025 – Present
<ul style="list-style-type: none"><li>Improved existing pixel wise ISD map estimation accuracy by assembling customized model with <b>MambaVision</b> backbone and <b>FPN</b> like dense regression head.</li><li>Implemented customized <b>training</b> and <b>evaluation</b> pipeline that trained and confirmed model's performance.</li><li>Build the visualization tool that removes the shadows in 16-bit linear images using ISD estimation.</li></ul>	
<b>Automated Herring Fish Detection &amp; Counting -- NEU &amp; MIT Sea Grant</b> : <a href="#">Demo on GitHub</a>	Sept. 2024 – Present
<ul style="list-style-type: none"><li>Preprocessed 162K fish images including filtering, annotation, augmentation, etc.</li><li>Generated 5k synthetic fish images with <b>SAM2</b> models on different backgrounds.</li><li>Fine-tuned pre-trained <b>Yolo11</b> on HPC to 90%+ accuracy on Herring vs non-Herring classification.</li><li>Combined customized counting algorithm with Yolo11 tracking (Bot-Sort) to count the fishes in video inputs.</li></ul>	
<b>Multispectral Image Segmentation of Blueberry Genotypes -- NEU &amp; UMaine</b> : <a href="#">Demo on GitHub</a>	Feb. 2025 – May. 2025
<ul style="list-style-type: none"><li>Preprocessed multi-spectral blueberry field images collected by MicaSense including alignment and annotation.</li><li>Analyzed various model performance on MSI segmentation including SAM, U-NET, YOLO11, and PSFormer.</li></ul>	

## Industry Experiences

<b>AI Research and Development -- cPort Credit Union, Maine</b> :	Aug. 2025 - Present
<ul style="list-style-type: none"><li>Built a live translation product between English and 6 targeted languages using Azure AI speech.</li><li>Fine-tuned AI speech models with cPort knowledge base and its targeted clients' needs.</li></ul>	
<b>Full Stack Developer (Co-op) -- Global Nursing Talent Inc</b> :	Aug. 2023 – Dec. 2023
<ul style="list-style-type: none"><li>Developed the website in Ruby from scratch to production that helps to recruit nurses.</li></ul>	
<b>Full Stack Developer (Co-op) -- Seminaut Inc, San Marcos, TX</b> :	July 2022 – Dec. 2022
<ul style="list-style-type: none"><li>Pushed the website to the next version; promoted to group leader of 9 teammates in Oct. 2022.</li></ul>	

## Selected Projects

<b>Transformer Suite (NLP + Vision)</b> : <a href="#">Tasks with Transformer on GitHub</a>	
<ul style="list-style-type: none"><li>Build transformer-based NLP &amp; ViT models from scratch for tasks including translation, summarization etc.</li></ul>	
<b>OpenCV Image Processing</b> :	
<ul style="list-style-type: none"><li>Learned basic image processing techniques, noise reduction, geometric transformations, etc.</li><li>Build Lenet-5 from scratch trained with MNIST dataset; it can classify handwritten numbers.</li></ul>	