Seaqueue Cheng

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Education

Northeastern University, Portland, ME — Sept. 2024 – Present
Major in **MSAI:** Coursework: NLP, Machine Learning, Algorithms

Northeastern University, Boston, MA — Sept. 2020 – May 2024
Major in **BSCS:** Coursework: OOD, Network and Distributed Systems, Computer Systems, Program Language, Web Dev

Skills

Languages: Python, Java, Ruby, Racket, PostgreSQL, SQL alchemy, Lean, C, Assembly
Frameworks: Pytorch, OpenCV, Roboflow, NumPy, Pandas, Plotly, CVAT, React (HTML + CSS + JS/TS), Overleaf
Software: MacOS, GitHub & GitLab, VS Code, Jupyter Notebook, IntelliJ, PyCharm

Research Experience

Shadow Removal via Illumination Spectral Direction(ISD) Estimation – NEU: Demo on GitHub — Sept. 2025 – Present

- Improved existing pixel wise ISD map estimation accuracy by assembling customized model with **MambaVision** backbone and **FPN** like dense regression head.
- Implemented customized **training** and **evaluation** pipeline that trained and confirmed model's performance.
- Build 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 **Yolo11** on HPC to 90%+ accuracy on Herring vs non-Herring classification.
- Combined customized counting algorithm with Yolo11 tracking (Bot-Sort) to count the fishes in video inputs.

Multispectral Image Segmentation of Blueberry Genotypes -- NEU & UMaine: 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

- Built a live translation product between English and 6 targeted languages using Azure AI speech.
- Fine-tuned AI speech models with cPort knowledge base and its targeted clients' needs.

Full Stack Developer (Co-op) -- Global Nursing Talent Inc: Aug. 2023 – Dec. 2023

- Developed the website in Ruby from scratch to production that helps to recruit nurses.

Full Stack Developer (Co-op) -- Seminaut Inc, San Marcos, TX: July 2022 – Dec. 2022

- Pushed the website to the next version; promoted to group leader of 9 teammates in Oct. 2022.

Selected Projects

Transformer Suite (NLP + Vision): Tasks with Transformer on GitHub

- Build 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.
- Build Lenet-5 from scratch trained with MNIST dataset; it can classify handwritten numbers.