

# Xinghao Chen

Seattle, WA, United States | xhc42@outlook.com | +1 206-535-9185 | cxh42.github.io

## EDUCATION

**University of Washington** | Seattle, US

(Expected) September 2024 - March 2026

Master of Science: Electrical and Computer Engineering (GPA:3.95/4.0)

Selected Coursework: Computer Vision, Large Language Models

**Henan University** | Zhengzhou, China

Bachelor of Engineering: Computer Engineering (Automation Specialization)

September 2020 - July 2024

Selected Coursework: Data Structure and Algorithms, Software Development, Signal Processing, Embedded System

## EXPERIENCE

**UW Sensors, Energy, and Automation Laboratory** | Seattle, US

September 2024 - Present

Web Development Engineer

- Designed and enhanced a real-time information upload system, improving efficiency and data accessibility.
- Improved the information display and editing interface, creating a more interactive and user-friendly experience.
- Automated laboratory scheduling processes with Google Sheet Scripts, significantly reducing manual workload.
- Supported the gamification of laboratory management by developing web-based tools to boost team engagement and optimize task distribution.

## PROJECTS

**Maritime-Specific LLaMA Fine-Tuning**

October 2024

- Fine-tuned the LLaMA3-8B large language model using a specialized dataset comprising maritime standards, technical terminology, and domain-specific guidelines.
- Implemented Low-Rank Adaptation (LoRA) techniques for efficient fine-tuning, enabling the model to excel in industry-specific tasks such as compliance analysis, technical documentation interpretation, and problem-solving.
- Achieved superior performance, surpassing larger general-purpose LLMs in accuracy and relevance on maritime-specific benchmarks.
- Designed and optimized the model for local deployment, addressing challenges of limited or unreliable internet access in maritime environments.

**Character Image Generation Workflow from Line Art**

November 2024

- Developed a workflow to transform black-and-white line art into high-resolution, colored images with accurate limb structure and vibrant colors.
- Utilized LoRA models to control and enhance the unique features of the characters, ensuring their distinct identity.
- Integrated ControlNets for accurate contour extraction from the input line art.
- Leveraged a DRCT (Deep Residual Correction and Transformation) model to upscale the image resolution while maintaining visual clarity and consistency.
- The workflow was recognized and adopted by artists and designers in the illustration community, streamlining character design and drawing processes.

**CIDAUT AI Fake Scene Classification Challenge**

December 2024

- Developed a fine-tuned Vision Transformer model for the CIDAUT autonomous driving scene classification challenge, utilizing BEiT as the backbone architecture to distinguish between real and synthetic driving scenarios.
- Implemented custom training pipeline with Focal Loss to address class imbalance, along with AdamW optimizer and learning rate scheduling for optimal convergence.
- Enhanced model robustness through strategic design choices including early stopping mechanism, 5-fold cross validation, and efficient data preprocessing with 384x384 image resolution.
- Achieved 92.5% accuracy on the competition's test set, demonstrating superior performance in detecting subtle artifacts in synthetic driving scenes.
- Employed PyTorch framework with custom dataset handling and memory optimization techniques, ensuring efficient training on GPU resources.

## SKILLS

**Programming Languages:** Python, Java, C, HTML/CSS, JavaScript, SQL

**Technologies/Frameworks:** Pytorch, OpenCV, TensorFlow, NumPy, Pandas, YOLO

**Developer Tools:** Git, Docker, VS Code, JetBrains Tools, MATLAB, Anaconda

**Language Proficiency:** English (Professional), Chinese/Mandarin (Native)