

# MASUMI YANO

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## EDUCATION

### UNIVERSITY OF WASHINGTON TACOMA

Tacoma, WA

Computer Science & Systems

June 2025

Advisor Chris Marriott ([cmarriot@uw.edu](mailto:cmarriot@uw.edu)), Martine De Cock ([mdecock@uw.edu](mailto:mdecock@uw.edu))

Dean's List Autumn 2023

Dean's List Winter 2024

### Green River Community College

Auburn, WA

Computer Science

June 2023

Dean's List Winter 2022

Dean's List Spring 2022

Dean's List Summer 2022

Dean's List Fall 2022

Dean's List Winter 2023

## AWARDS AND HONORS

Outstanding Undergraduate Researcher (University of Washington Tacoma), 2024

## TECHNICAL SKILLS

Probability, Calculus, Linear Algebra, Python, Machine Learning library (PyTorch, TensorFlow, etc.)

## RESEARCH INTERESTS

Computer Vision

Vision Language Model

Generative AI

## RESEARCH EXPERIENCE

### Privacy Preserving Machine Learning Lab (PPML Lab)

Tacoma, WA

Undergraduate Researcher, School of Engineering & Technology (September 2024 – Present)

Led collaborative research with UW Tacoma School of Nursing to develop machine learning models predicting insulin injection side effects. Implemented and optimized algorithms such as logistic regression, random forest, Cat boost, SVC, etc. to achieve AUC scores exceeding 83% (paper in preparation).

Collaborated with PhD students from PPML lab to designed and implement an efficient computer vision model for encrypted ImageNet classification. Achieved 95% accuracy using 2 CNN layers and 1 dense layer.

Currently competing in IEEE SaTML competition on reverse engineering synthesized tabular data, working with PhD researchers to develop reconstruction algorithms for identifying original data from diffusion model outputs.

#### Research Apprenticeship

Tacoma, WA

Undergraduate Researcher, School of Engineering & Technology (September 2024– Present)

Led weekly research discussions with Prof. Marriott focusing on landmark Computer Vision papers, progressing from foundational architectures (AlexNet, ResNet) to advanced generative models (GANs), developing critical analysis and research evaluation skills.

Participated in academic peer review process by assisting with conference paper reviews to develop research evaluation and scholarly critique.

Attended CVPR 2024 conference under faculty mentorship, engaging with state-of-the-art research and expanding professional network in the field.

## COMPETITION

Large Language Model Capture-The-Flag (LLM CTF)

Online

(January 2024 – May 2024)

Participate in the Competition with PhD student from PPML lab to generate LLM defense system to secure the secrete from the attackers.

Led OpenAI team and created prompt against defense LLM system by utilizing a few shots prompting, roll playing system prompt.

CIFAR-10 Image Classification

Online

(April 2024 – June 2024)

Collaborating with PhD students from PPML lab, designed and trained classification models for the FHERMA.io privacy preserving machine learning challenge using homomorphic encryption.

## EXTERNAL AND INTERNAL FUNDING

CVPR 2024 Conference Funds:

University of Washington Tacoma; Tacoma, WA

PI: Chris Marriot

July 2024: \$810

## PROFESSIONAL EXPERIENCE

University of Washington Tacoma

Tacoma, WA

Research Assistant, School of Engineering & Technology

(July 2024– September 2024)

Successfully migrated earthquake particles simulation codebase from FISH to Python, overcoming scoping problem of FISH and improving code readability while maintaining functionality.

Developed documentation for FISH manual for future reference.

Optimized particle tracking and graphing capabilities in Python, enhancing the performance and maintainability of civil engineering research simulations.

Green River Community College

Auburn, WA

Tutor, MESA

(December 2022–June 2023)

Provided one-on-one tutoring in Computer Science, Mathematics, and Physics for over 20 students at sophomore and freshman levels. Result in consistent grade improvements of 0.4+ points.

Developed personalized homework assignments and implemented whiteboard brainstorming to enhance student understanding and problem-solving capabilities.

## REFERENCES

Martine De Cock ([mdecock@uw.edu](mailto:mdecock@uw.edu))

Chris Marriott ([cmarriot@uw.edu](mailto:cmarriot@uw.edu))