TOMOYOSHI KIMURA

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EDUCATION

University of Illinois at Urbana Champaign *2020 - 2023*
Bachelor of Science in Computer Science *GPA: 4.0*
Related courses:

Computer Security	Machine Learning	System Programming
High Frequency Trading	Algorithms	Data Structures
Computational Photography	Computer Architecture	Numerical Methods

EXPERIENCE

National Center for Supercomputing Applications *August 2021 - Present*
Research ML Intern

- Integrated the agricultural research with Computational methods such as **Convolution Neural Network** and Geoimage processing to analyze the crop production of the state of Illinois.
- Built classification models with **ResNet18** using **Pytorch** and **TensorFlow** to assist research related to Illinois' crop growth.
- Implemented **Computer Vision segmentation methods** for object detections that was a part of an agricultural study on the effect of brutes to methane production in Illinois.

PROJECTS

Tillage Classification via **AWS, Tensorflow, Pytorch** *September 2021 - Present*

- Performed evaluation on tillage types over corn and soybean crop fields in central Illinois.
- Preprocessed and cleaned the datasets through numerical methods.
- Trained a ResNet classifier model with image datasets under a 80/20 data split strategy.
- Achieved **95% training accuracy** and **80% test accuracy**, increasing the performance by **40%**.

Cow Instance Segmentation via **AWS, Pytorch** *November 2021 - Present*

- Performed **Semantic and Instance Segmentation** methods to count number of cows in the field images
- Utilized Morphological methods to analyze the semantic segmentation results
- Applied Pinhole Camera methods to calculate the distance of objects in an image.
- Assisted an ongoing research related to Methane production by brutes in Central Illinois.

Real-time Face mask detection via **OpenCV, ResNet** *September 2021 - December 2021*

- Implemented Convolution Neural Network for Mask and No Mask classification.
- Applied Harrcascade library to detect frontal face.
- Built a **ResNet34** model for Mask, Incorrectly Worn Mask, and No Mask classification.
- Successfully detected the state of the mask in real-time through OpenCV; demo available on GitHub.

Personal Website via **React** *November 2021 - December 2021*

- Build an Engineering Portfolio through React framework.
- Utilized Routers to achieve a multi-page website to improve user experience
- Designed custom components with unique animation effects

SKILLS

Programming Languages:	C, C++, Python, HTML, CSS, JavaScript
Frameworks & Tools:	**Core:** TensorFlow, Pytorch, AWS, Firebase, Git, Numpy, OpenCV **FrontEnd:** React, React Native, Node.js
Languages:	English, Mandarin, Japanese
Interests:	Software Engineering, Computational Sustainability, Big Data & Intelligence, Computer System, Computer Security