FELIX YU

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EDUCATION

University of Michigan, Ann Arbor   **Expected Graduation: May 2025**
BS Computer Science, Minor in Earth Sciences   *GPA: 3.81/4.00*

Relevant Coursework: Data Structures and Algorithms, Machine Learning, Statistics, Data and Models, Linear Algebra, Operating Systems, Global Warming, Physical Geography, Geophysics (Intended), Natural Resources (Intended)

Skills: C++, Python, TensorFlow, PyTorch, SQL, Pandas, Javascript, Git, Optical, LiDAR, & Radar Remote Sensing, QGIS

Honors: National Merit Scholar, James B. Angell Scholar, Steiner Family Scholarship, University Honors

EXPERIENCE

Lawrence Berkeley National Laboratory   **May 2024 – August 2024**
Environmental Data Scientist Intern   *Berkeley, CA*
- Developed a CNN machine learning model using TensorFlow and Python to downscale NASA satellite albedo data over the Upper Colorado River, enhancing understanding of snowmelt dynamics to improve climate forecasting by 3 weeks
- Evaluated neural network model by implementing albedo equations found in existing GOES-R, Sentinel-2, and MODIS research article methods combined with in-situ field measurements, achieving a 0.70 $R2$ score with a 10% margin of error
- Presented downscaling methods and results at an end-of-year poster session, submitting albedo data and an abstract for DOI publication and co-authorship at AGU24 through the Atmospheric Radiation Measurement Research Facility

Dr. Jessica Fayne's Climate Change Remote Sensing Lab   **December 2023 – Present**
Research Assistant   *Ann Arbor, MI*
- Analyzed wetland geological composition by investigating Synthetic Aperture Radar data using Python, R, QGIS, and image segmentation techniques to classify water and vegetation with 95% accuracy to protect wetland ecosystems
- Researching biologic wetland carbon sequestration using remote sensing, NEON full-waveform LiDAR, flux tower data, and supervised machine learning regression techniques to advance science-backed nature-based climate solutions

Stryker   **May 2023 – August 2023**
Software R&D Intern - Robotic Application   *Weston, FL*
- Implemented an algorithm using C++, QT, and linear algebra kinematic transformations to calculate valid robot positions for a knee-cutting surgical robot, decreasing workflow set-up time and increasing cut position accuracy by 10%
- Designed a full-stack responsive web app and API to queue tasks for a LiDAR and computer vision robot deployed for tool-carrying using Flask, Vue.js, and ROS 2, handling 10+ requests at a time and decreasing transport time by 20%

Lincoln Electric Automation   **Sep. 2022 - December 2022**
Software R&D Intern - Automation   *Fort Collins, CO*
- Developed a client-facing menu screen displaying robot software information pulled from ABB's RobotStudio API and FANUC's Karel system using Typescript and Vue.js, reducing customer inquiry call frequency and duration by 10%
- Optimized new in-house robot simulator performance by refactoring methods within math libraries using Typescript and leveraging Vue.js asynchronous programming techniques to reduce rendering time by 20% for a seamless user experience

Lilani Plants - lilaniplants.com   **July 2019 – May 2022**
Founder   *Fort Collins, CO*
- Engineered electronic self-watering plant pots that water smartly based on soil moisture levels by coding pot software and hardware, designing Cura 3D printed components, and soldering PCB electronics, producing 20 units for 15+ customers
- Programmed Arduino micro-controller using C++ and companion Apple Store app using Swift, developing a plant database using Firebase and implementing Bluetooth connectivity, resulting in 100 monthly users and 1,000+ downloads

PROJECTS

Hospital Mortality Predictor | *PyTorch, Pandas, Kernel Regression, Feature Engineering*
- Developed a classification tool to identify patients at risk of in-hospital mortality using 700+ patients in a publicly available dataset by tuning machine learning model hyper-parameters, achieving 90% classification accuracy

Data Analysis on National Park Biodiversity | *Python, Matplotlib, Pandas*
- Identified 10+ National Parks with biodiversity concerns by taking in animal species CSV data from 50+ US National Parks and applying statistical analysis techniques using Python, Pandas, and Matplotlib to visualize threatened species

ADDITIONAL

Avid skier – has a 50% success rate in landing ski jumps

Former Colorado State Chess Champion – played against a Grand-master in a blind chess match

AGU 2024 Paper: "Observations of super-unit albedo in complex terrain"