Lanyue Fang

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EDUCATION

Cornell University, College of Engineering, Ithaca, NY **Expected Dec 2022**
Master of Engineering in Electrical and Computer Engineering, **GPA: 4.11**
Selected Coursework: Fast Robots (https://lueluefly.github.io/ece5960-FastRobots/), Autonomous Mobile Robots, Design with Embedded Operating System (A), Computer Vision (A+)

Zhejiang University, College of Optical Science and Engineering, Hangzhou, China **June 2021**
Bachelor of Engineering in Opto-Electronics Information Science and Engineering, **Cum Laude, GPA: 3.90**
Selected to Intensive Training Program for Innovation and Entrepreneurship
Selected Coursework: Applied Optics, Optical System Design, Electronic System Design, Machine Vision and Image Processing

SPECIALIZED SKILLS

Technical: C, C++, Python, Matlab, Multisim, Zemax, OptiSystem, SolidWorks, Altium Designer

ENGINEERING EXPERIENCE

Aerial Drone and Tower Spectrometer Control System, Cornell University **Nov 2021-Now**
- Serve as an embedded software engineer for the Sun Lab in the College of Agriculture and Life Sciences
- Installed the power supply, data loggers, motor driver and temperature sensors for the filed Tower Spectrometer Control System
- Combine the data feedback from accelerometers and Hall effect sensors for fiber orientation check and calibration, on the purpose of increasing the reliability and lowering noise
- Design a gimbal system for the fiber to make it stay stable during scanning when the drone is hovering in the air

Gomoku Game Machine, Cornell University **Nov-Dec 2021**
- Created a Gomoku machine with high win rate
- Implemented min-max search tree and alpha-beta pruning algorithms to generate the next step for the machine
- Executed proportional-integral-derivative(PID) control loop to guide the movements of stepper motors
- Established a closed-loop control for the robot arm moving, using a mark point to track trajectories and calibrating positions; the robot can put the stones accurately, less than 1mm error.

Nondestructive and Portable Tester of Apple Brix Based on Spectral Data, Zhejiang University **Aug-Sep 2020**
- Selected components, including LED, PIN photodiode, optical filter, and Micro Control Unit (MCU)
- Designed circuit, including voltage conversion module and I/V converter module circuit based on T feedback network
- Wrote hardware programming (Keil C, Java) to collect spectral data
- Established a predictive model using multiple linear regressions with little error; the device was selected as an exemplary work for reference

RELEVANT RESEARCH PROJECTS

Point Cloud Registration Algorithms of Dynamic Models based on laser scanning, Zhejiang University **Nov 2020-May 2021**
- Studied classic point cloud registration algorithms, including Normal Distribution Transform (NDT), Iterative Closest Point (ICP) and it's variants.
- Compared and analyzed the algorithms in terms of convergence speed and registration angle error, using the standard point cloud in the Stanford University point cloud library as a static model.
- Collected dynamic point cloud data of turntable and tested the algorithms with C++; point to plane ICP algorithm had good performance, and the standard deviation of registration angle error was about 0.003°.

Fast Identification of Targets in Super Remote Sensing Satellite Images, Zhejiang University **Apr 2019-May 2020**
- Established an aircraft image database
- Built and trained a back-propagation neural network with Matlab that could automatically identify aircraft targets in satellite images by scanning images with 75% accuracy
- Studied common algorithms of interpolating missing color components at the output of Bayer color array, including Bilinear, Hamilton, Hibbard, Lu, and Kimmel algorithms; systematically evaluated the demosaicking speed and performance
- Implemented a luma-chroma demultiplexing algorithm using a least-squares design methodology for the required bandpass filters. Improved the demosaicking performance and calculation speed by more than 60 times that of the commonly used Bilinear algorithm
- Project achieved highest national level by the Student Research Training Program