Yanfu Ou

312-721-5369 | YanfuOu2@seas.upenn.edu | Greater Chicago Area | Linkedin | YanfuOu.com | US Permanent Resident

Education

University of Pennsylvania, School of Engineering and Applied Sciences | Philadelphia, PA **May 2026**

Candidate for Bachelor of Science in **Computer Engineering** | *GPA: 3.5/4.0*

Coursework: AI, Big Data Analysis, Controls for Robotics, Networking, Data Structures&Algorithms, Embedded Systems Programming, C & Computer Systems, Engineering Statistics, Discrete Math, Java, CalcIV, Micro&Macro Econ, Accounting

Distinctions: Questbridge National Match Full-Ride Scholarship, James A. Clark Scholars

Work Experience

Penn xLab Safe Automnous Systems Lab, *Autonomous Driving Researcher,* full-time | Philadelphia, PA May 2024 - Present

- Developed the integral lane-detecting algorithm utilizing the Intel RealSense depth camera and Python OpenCV
- Implemented lane detection code on Nvidia Jetson Orin Nano for edge computing on wheels
- Utilized SOLIDWORKS to CAD custom part and test mounts for 3D printing
- Designed custom PCB for power distribution and battery management in KiCad and validated functionality
- Interfaced Hall-effect sensor to measure wheel speed and communicated with Jeston via serial to create ROS topics

Green Halo Non-Profit Foundation, *Full Stack Software Engineering Intern,* part-time | Hinsdale, IL Jun 2023 - Aug 2023

- Spearheaded the development of an Alumni Network for 100+ members to community engagement
- Led UI/UX design of 5+ web pages using React and NodeJS as well as MongoDB for user data storage
- Secured the website and member data with Google Firebase and hosted on Google

National Futures Associations, *Quality Assurance Intern,* full-time in-person | Chicago, IL Jun 2023 - Aug 2023

- Conducted 600+ test cases and discovered more than 40 bugs in NFA and CFTC compliance auditing systems
- Tested application data stored on SQL Server and Oracle to ensure successful server migration
- Adopted the SCRUM framework for workflow management and collaborated with the team for 4 sprint cycles

Extracurricular Activities & Leadership

IEEE @ Penn, *Founder & Captain of Sumobot* | Philadelphia, PA July 2024 - Present

- Founded the Sumobot team from the ground up and led crucial team funding, engineering, and recruiting operations
- Coordinated communications with university administrators and regional representatives to ensure club operations
- Programmed and tuned PID controllers to boost movement accuracy and efficiency by 20%
- Managed team timelines and updated the Home page and Sumobot page of https://ieee.seas.upenn.edu/

University of Pennsylvania, *Bits, Circuits, and Systems(ESE1110) TA* | Philadelphia, PA Aug 2023 - Present

Formula SAE Penn Electric Racing, *PDU Electrical Engineer* | Philadelphia, PA Aug 2022 - Present

- Led the redesign of the Power Distribution Unit in Altium to reduce board size by 50%
- Spearheaded the Debug Board to debug STM32G7 via SWD protocol to reduce debugging time by 20%
- Programmed FPGA in Verilog to convert SPI signals from resolver to QSPI signals in Motor Controller's STM32
- Designed the resolver board to process angle sensors and communicate with the Powertrain Control Module
- Designed the Strain Gauge Amplifier board and simulated using LTSpice to ensure accuracy and reliability

VEX Robotics, *Captain & Programming Lead* | La Grange, IL Aug 2019 - May 2022

- Managed communications and subteam timelines for twice VEX world championship team
- Developed autonomous programming using PID control in C++ to increase movement accuracy by 25%
- Implemented field-based GPS systems utilizing odometry concepts to improve awareness by 50%
- Researched computer vision algorithms to identify targets and plan autonomous paths

Projects GitHub.com/YanfuOu | Portfolio Website www.YanfuOu.com

Power Distribution Unit | Altium Designer, LTSpice | PCB & Schematics Aug 2022 - Present

- Spearhead design of Charger, Power, Outputs, Battery, Debug, and MCU sub-schematics
- Utilized SPI, UART, I2C, and CAN to communicate between chips and GPIO ports

Ping Radar Robot | AVR, ATmega328PB, Embedded C, Baremetal Programming, UART | Project Github Jan 2024 - Present

- Utilized a rotating Ping sensor to detect objects communicate and obstacles with ATmega328PB and ESP32via UART

Personal Website | HTML, CSS, JavaScript, AWS EC2, S3, Apache | GitHub.com/YanfuOu May 2023 - Present

- Developed YanfuOu.com utilizing HTML, CSS, and JavaScript, served using Apache Server running on EC2

Skills & Interests

Design: Altium Designer · LTSpice · QSpice · Electric · Cadence · MATLAB · Electric · Verilog · VHDL · Solidworks
Software(Cloud): AWS(EC2, IoT, S3) · Linux(Ubuntu/Mint) · JavaScript · MongoDB · ExpressJS · React · NodeJS
Software(Dev & Data): Java · Python(Pandas, Numpy, OpenCV) · C++ · C · Go · SQL · Bash Scripting · MatLab
Languages: Mandarin (Native) · Cantonese (Native) · English (Fluent) · Classical Latin (Intermediate)
Interests: Software Engineering · Electrical Hardware Engineering · Web Development · AI · Robotics · Finance · Consulting