Jack (Jianxiang) Xu

Mechatronics Engineering | 2A

University of Waterloo | B.A.S c (2016 - 2021)

JXproject

jxinbox.com

Jack-xu-jxinbox

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SKILLS

Hardware: LabVIEW, Arduino, ESP8266, ARM boards, PLC, EAGLE, Soldering, Rapid Prototyping

Software: C, C++, Java, C#, Python, VBA script, Javascript

Mechanical: SolidWorks, VectorWorks, Fusion 360, AutoCAD, Laser Cutting, 3D printing

Tools/Platforms: Unity, Linux, OpenCV, TensorFlow, Git, IAR Embedded Workbench

EXPERIENCE

Embedded Developer
Baanto, Nytric Inc.
(May 2017 - Aug. 2017)

- Developed firmware in **C++** to compute vertices and recognize the shape of basic polygons precisely for ShadowSense multi-touch screen
- Proposed and created new analyzing tool sets in **Excel** with **VBA** and a real-time monitoring tool in **Unity** with **C#**, to decrease debug time through improved presentation of sensor data

Lead Hardware Developer
TobyX (Startup)
(May. 2017 - present)

- Developing a new dynamically scalable IoT solution for hotel services and advertising, composing of Cloud, Hubs, and Things to provide a revolutionary experience
- Designing and prototyping embedded hardware such as outlets, thermostats, and hub devices with secure wifi communication in **C/C++**

PROJECTS

TrackyfAI
(Sept. 2017)

- Built a surveillance processing tool (for Canadian Special Operations Forces Command) that allows military analysts to better evaluate large amounts of video footage
- Implemented image processing and object recognition with **Python**, **OpenCV**, and **TensorFlow**

Extensa Robotic Arm
(Nov. 2016)

- Designed and built a robotic arm with 4 degrees of freedom with **Lego NXT**, Tetrix Kit, **C++** and **RobotC**
- Implemented PID control, inverse kinematics, auto calibration, voice feedback and Bluetooth functionality onto the arm for a more interactive and seamless control interface

Project Helm
(Feb. 2017)

- A smart IoT helmet for bikers that provides haptic feedback for any approaching vehicles.
- LED strips were used to provide visual cues to approaching vehicles when stopping, accelerating, and turning
- Used **C++**, Xadow Kit, Accelerometer, and other electronic components

Music Walker
(Oct. 2016)

- Designed and built a music line follower which converts greyscale colour line to music with low-cost homemade greyscale sensors, using **C++** and **Arduino**

Music Synthesizer
(Jan. 2017)

- Created a music synthesizer, using **Arduino**, Gyro, and other electronic components from scratch within 12 hours, which won 2nd place in IEEE Hackathon

Robot and Control System Projects
(Feb. 2016)

- Built a variety of prototypes such as a microwave, a multi-floor elevator, a green house, and a vehicle lift with **STEM kits** and **myDAQ**, programmed in **LabVIEW**
- Won 1st place in Halton Skills Competition for robotic and control system design

ACTIVITIES

UW Robotic Team
(Sept. 2016 - present)

- Worked on the mechanical and electrical design for an autonomous Mars Rover robot
- Currently working on firmware development for the new 2018 Mars Rover robot

FRC 3161 Team

- Designed mechanical systems for First Robotic Competition. (Currently working as a Mentor)

Photography

- An unique way of retrieving myself back to the nature