Jack Xu

Mechatronics Engineering - 2A

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SKILLS

Embedded Related:	Arduino, ESP8266, IAR Embedded Workbench, ARM boards, LabVIEW, PLC, EAGLE, Soldering
Software Related:	C++, Java, Unity, C#, Javascript, HTML 5, CSS, Data Structures and Algorithms, OPP, Rython
Mechanical Related:	SolidWorks, VectorWorks, AutoCAD
Others:	Microsoft Word, Excel, PDF and VBA script, Adobe Series

EXPERIENCE

Embedded Developer, Baanto, Nytric Inc. (May, 2017 - present)
Developed an innovative solution (in **C++**) on shape detection, which enabled ShadowSense multi touch screen recognizing basic polygons with less than 5mm errors.
Created analyzing tool sets in **Excel** and built a real-time monitoring tool in **Unity**, which provided better vision for sensor and firmware data, consequently time spent on testing and debugging was reduced enormously in comparison with traditional testing methods.

Lead Hardware Developer, TobyX (Startup) (May, 2017 - present)
Developing TobyX systems (Cloud, Hubs, and Things) to provide an entirely new experience on Hotel services and advertising.
Designing and prototyping embedded hardwares with secured wireless communication.

EXPERIENCE

TrackyfAI
Build a surveillance tool (for Canadian Special Operations Forces Command) that allows military analysts to better analyze large amounts of video footage using **Python**, **OpenCV**, and **TensorFlow**.

Extensa Robotic Arm
Designed and built a robotic arm with 4 DOF from scratch with **Lego NXT**, Tetrix Kit, **C++** and **RobotC**.
Developed several programs with implementation of PID control, Inverse Kinematics, Auto Calibration, Voice feedback and bluetooth communication.

Music Walker
Designed and built a line follower which converts grey scaled colour line to music with low-cost homemade sensors from scratch, using **SolidWorks, C++** and **Arduino.**

Music Synthesizer
Created a music synthesizer with a variety of functions such as music mixing, tweaking, recording, and playback, composed with **Arduino**, **Gyro**, homemade **DAC**, and other electronic components from scratch in 12 hours during IEEE Hackathon.

Project Helm
Built a smart helmet that provides vibration feedback to the rider when a car approaching behind, a visual feedback to drivers when slowing down, and a sound feedback for navigation, using **Xadow kit**, **Accelerometer**, **and C++**.

Microwave Prototype
Built a microwave prototype with **STEM kits** and programmed the control systems in **LabVIEW**

ACTIVITIES

UW Robotic Team
Worked with mechanical and electrical design for the Mars Rover robot, which won 2nd place in Canada at Utah.

FRC 3161 Team
Designed mechanical systems for First Robotic Competition. (Currently worked as a Mentor)

Photography
An unique way of retrieving myself back to the nature

EDUCATION

University of Waterloo   Mechatronics Engineering B.A.S c (2016 - 2021) l GPA: 86%