



JACK XU

MECHATRONICS ENGINEERING - I B

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SUMMARY

- Over 3 years experience in **embedded systems, robotics and control systems**, and automation as demonstrated in extensa robotic arm, accelerando robot, and a number of other award winning projects.
- Able to **learn quickly and apply** to daily problem solving as shown in side projects.
- **Project Manager and Designer** for a variety of teams and projects.

SKILLS

Hardware:

SolidWorks, Vectorworks, AutoCAD, Arduino, mySTEM and Quick Prototyping

Software:

Most experience with

Java, C++, Javascript, HTML5, CSS, jQuery, RobotC, Data Structures & Algorithms, OPP
(Tools): Git, Eclipse, NetBeans, Xcode, Atom

Some experience with

LabView, PLC, and C

ACTIVITIES

UW Mars Rover 2017

Mechanical & Electrical Member | 2016 - present

- Implementing a creative mechanical design solution for soil extraction and cleaning mechanisms.

PackAnts

Front-End Web Developer | 2017 - present

- Improved the website and the integration of back-ends

FRC Team 3161

Mechanical Designer | Sept. 2015 - July, 2016

- Designed the robot using SolidWorks for in First Robotic Competition.

Photography

Personal Hobby

- A way of touching, feeling, creating, and loving.

EDUCATION

University of Waterloo |

Mechatronics Engineering B.A.Sc
2016-2021 | 1A-GPA: 3.9

PROJECTS

- JXinBOX.com 🏠

Personal Web Portfolio | July 2016 - present

- Devised a website using **Javascript, HTML5, CSS, and jQuery**.
- Created an interactive simulation of dot creatures with a **tree-like linked data structure**, restricted by simple rules and possibilities.
- Currently working on the implementation of **machine learning** to bring dots more vivid and lovely, which eventually accelerates new evolution.

- Extensa Robotic Arm

Project Designer | November 2016

- Designed and built a robotic arm with 4.5 Degrees of Freedom from scratch using **LEGO NXT, Tetrix Kit, C++ and RobotC**.
- Developed 2 extended libraries and 4 demo programs for other developers with focus on industrial performance (Safety + Auto calibration + PID control + 3D cartesian coordinate system) and recreational use (Bluetooth Joystick control + Fun Interactive Games).

- Accelerando Robot

Project Manager | October 2016

- Organized a team of 5 to devise a line follower with a grayscale to music converter from mechanical, electrical, and software design (C).
- **Laser cutted** the robot created in **AutoCAD and SolidWorks**.
- Designed, tested, and soldered entire circuits layout with DAC converter, buffering and filtering system, and home made color sensors (with self-designed **3D printed** sensor hoods), which save **50%** of budgets.

EXPERIENCE

- Project Lead and LabView Programmer

Robotic and control system Design Competition | Dec. 2015

- Won **1st Place** for Robotic and Control System Design at Halton Skill Competition in Halton Region
- Designed, prototyped, and programmed a variety of **embedded systems** to resolves challenges involving Mechanical Systems, Controls, Automation, Mobile Robotics, and Software Design.
- Devised innovative safety protocols in both Hardware (**mySTEM Engineering Kits**) and Software (**LabView**) design such as physical stops, circuit breaker, limit switches, and visual and sound feedback.
- **Related Projects :**
 - **3 Floor Elevator**
 - **Vehicle Lift**
 - **Microwave Prototype**
 - **Green House Simulator**

- Architecture Designer

5th Annual Architecture Design Competiton [JWA] | Dec. 2015

- Earned a **2nd Place** in a light house design competition for Oakville.
- Illustrated the concept using **AutoCAD, Vectorworks, Adobe Illustrator, and Photoshop**.
- Incorporated engineering aspect onto artistic design of the light house to ensure the reliability of the lighthouse by analyzing wind pressure using **Autodesk Flow Design**.