JACK XU

MECHATRONICS ENGINEERING - IB

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SUMMARY

- Over **3 years** experience in **embedded systems**, **robotics and control systems**, and **automation** as demonstrated in extesa robotic arm, accelerando robot, and a number of other award wining 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

- **SolidWorks, Vectorworks**
- **AutoCAD**
- **Arduino, mySTEM**
- **Quick Prototyping**
- **LabView, PLC,** and **RobotC**
- **Java, C++**
- **Javascript, HTML5, CSS,**
- **jQuery**

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
IA-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 **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**, **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**).

Acclerando 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.
- Laser cutted the robot created in **AutoCAD** and **SolidWorks**.
- Designed, tested, and soldered **entire circuits** layout with DAC converter, buffering and filterring system, and home made color sensors (with **3D printed** sensor hoods)

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 stop, circuit breaker, limit switches, and visual and acoustic feedbacks.
- **Related Projects** :
  - **3 Floor Elevator,**
  - **Microwave Prototype,**
  - **Vehicle Lift,**
  - **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**.