

Jack (Jianxiang) Xu

Mechatronics Engineering | University of Waterloo | B.A.S c (2016 - 2021) | 3A

 Jack-xu-jxinbox
 jxinbox.com
 JXproject
 (289) 242 7243
 j337xu@edu.uwaterloo.ca

SKILLS & TOOLS

Software C++, C, C#, Java, Python, Javascript
Tools ROS, OpenCV, OpenGL, HoloLens, Unity, Linux, Git, IAR, VisualStudio, MATLAB
Hardware LabVIEW, EAGLE, PLC, Arduino, ESP8266, ARM M3/4, AVR, Soldering, Rapid Prototyping
Mechanical SolidWorks, Fusion 360, AutoCAD, VectorWorks, Laser Cutting, 3D printing, Machining

EXPERIENCE

Jack of all robots | Trexo Robotics *(Sept. 2018 - present)*

- Developing medical exoskeletons for children with walking difficulties
- Working on firmware, ROS control software, and Android applications (C, C++, Java, Python, and ROS) to provide a seamless and comfort rehabilitation experience

Team Leader | International Autonomous Robot Racing Team (IARRC) *(Jan. 2018 - present)*

- Leading a team of 20 students, developing a fully autonomous racing robot that is capable handling high speed racing, active path planning, and computer perception in rough terrain for year 2018 and 2019 competitions
- Conducted the mechanical, electrical and software systems for the robot (SolidWorks, EAGLE, ROS, C++/C)

AR Software Engineering Intern | Interaptix AR *(Jan. 2018 - April. 2018)*

- Worked on a state-of-the-art real-time AR project and conducted various R&D on the product
- Developed a variety of testing and evaluation tools (C++, OpenGL, Python) for cameras, network, and hardware
- Implemented custom calibration and point-cloud rendering for multiple RGB-D cameras

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

- Improved the performance of the firmware and developed a creative algorithm (C++) to compute vertices and recognize the polygon shapes for multi-touch multi-scale ShadowSense touchscreens in firmware over 60Hz
- Developed handy analysis tools (Excel, VBA, python) and a real-time sensor data visualizing application (C#, C++, Unity), which minimized the time spent on debugging and algorithm testing by over 50% (Tools are also being used for conference demonstrations to showcase the brilliant operation behind the product)

Product Manager + Board Director | TobyX (Startup) *(May. 2017 - Nov. 2017)*

- Conducted a dynamically scalable IoT system to provide a revolutionary experience for hotel services
- Designed and prototyped embedded hardware systems such as smart wireless outlets, thermostats, and hub devices with a secured local network system (ESP8266, ARM boards, C++/C)

PROJECTS

Ctrl-F-IRL *(Mar. 2018)*
• Made a real-time offline AR searching tool on the Android platform, which brings 'Ctrl-F' experience in real life to highlight all key words in a glance with the cellphone camera (Java, ABBYY)

TrackyAI *(Sept. 2017)*
• Built a surveillance processing tool (for Canadian Special Operations Force Command) that allows military analysts to better analyze large quantities of video footage (YOLO, Python, OpenCV)

Project Helm *(Feb. 2017)*
• Designed and developed a smart IoT helmet for bikers that provides haptic feedback and visual cues for both bikers and any approaching vehicles (C, C++, Xadow Kit, IMU)

Synthesizer *(Jan. 2017)*
• Created a music synthesizer from scratch within 12 hours, using provided Arduino, Gyro, and other hardware components. (2nd place in IEEE Hackathon) (C, C++, Rapid Prototyping)

Extensa Robotic Arm *(Nov. 2016)*
• Designed and built a versatile robotic arm with 4 DoF to perform supervised tasks (C++, C)
• Implemented a PID and sigmoid trajectory controller, and inverse kinematics for a smooth operation
• Integrated voice and Bluetooth function onto the arm for a more advanced user control interface

TEAMS & ACTIVITIES

IARRC Team • Initiated a new organization team for the 2019 International Autonomous Robot Racing Competition

WATonomous • Implement a more accurate and faster lane perception algorithms (C++, OpenCV)

UW MarsRover • Worked on the mechanical and computer vision systems for an autonomous Mars Rover robot

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

Photography • A short break to retrieve myself back from my work to discover the beauty of every moment