DANIEL **AZÚA**

Robotics Engineer | MSc. Technology Innovation Robotics

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SUMMARY:

- Overall, 4+ years of experience developing and working with new technologies and applications for products.
- Experience designing a complete robotic system for a client using the design thinking process (research, prototyping, testing, and implementation).
- Worked with 6-axis robots. Programmed the robot motion, path planning, and end-of-arm tooling using offline programming and teach pendants.
- Experience prototyping (3D modeling, sketching, and hardware/software integration), using laboratory and machine shop equipment.
- Worked with electronics, microcontrollers, embedded systems, several operating systems, and programming languages.
- Technical support of automation equipment and software; hardware troubleshooting and providing software fixes or adding new features.
- Experience in research, replication, and testing of technical issues. Worked with customers, operators, partners, and engineers to solve complex problems.

EXPERIENCE

University of Washington
Maker Space staff *March 2021 – December 2021*

- Monitor and use laboratory equipment including 3D printers, laser cutters, CNC, 3D molders, sewers, electronics, and woodshop equipment.
- Assist users with their projects and provide guidance on which equipment or components they could use to build their hardware/software prototypes.
- Assist with training for using the lab equipment. Provide safety training to the new users of the lab.
- Maintain the robotics laboratory and troubleshoot the equipment. Collaborate with other departments to keep all the equipment working as expected (installation, operation, and performance).
- Develop User Guides for the machines and processes.

Honeywell Technology Solutions
Developer Support Engineer *March 2018 – March 2020*
Sr. Developer Support Engineer *April 2020 – September 2020*

- Promoted for helping customers surpass goals by implementing and integrating the Honeywell warehouse automation solutions.
- Bring prototypes up and assist in keeping them running, with a particular focus on issues that arise from interactions between software and hardware.
- Design and implement sensor systems, the respective calibration procedures, and supporting test hardware.
- Develop software fixes or features. Provide in-depth technical assistance at the code level.
- Provide guidance on how to improve the performance of the system of the customers.
- Drive timely identification, investigation, testing, resolution, root cause analysis, and replication (lab environment) of technical issues.
- Build internal relationships to expedite complicated cases and share knowledge and provide development assistance. Collaborate with different teams including engineering, product management, and customer service.
- Develop and monitor metrics for measuring product performance in the field.
- Develop User Guides, Processes, and Custom Systems Documentation.

PROJECTS

Portfolio: www.danielazua22.com

Stockbot Sponsored by Fetch and Kinova Robotics *2021*
(Robotics, Linux, Python, C++, Robotic Operating System, Computer Vision, Navigation, Grasping, Pick and Place, Web Application, User Research, User Test, and Functional Testing)

- Designed a robotic system to automate equipment management in warehouses, laboratories, libraries, etc.
- Developed a robotic equipment management system using a Kinova robotic arm that sorts and kits the items, then the Fetch mobile robot transports kitted items between the user and stock area.
- A custom decision engine manages distributed system and plans the action pipeline.
- Developed a web interface that provides interaction between the users, system, and robots.
- Explored different sensors and robot end effectors for performing robotic tasks and routines.
- Designed the testing, defined metrics for each part of the system, and analyzed the data obtained.

Rotary Socket *2021*
(Sketching, Prototyping, Design, 3D modeling, Autodesk Fusion360, and 3D printing)

- Designed a modular rotating power board that allows each module to rotate. This will offer enough space for different-shaped plugs.
- Designed the mechanical and electrical/electronic components of the socket.
- Created several 2D and 3D representations of the prototype, using sketches, computer models, and physical models.

3D Mapping Robot *2017*
(Linux, Robotic Operating System, Python, C++, SLAM, and 3D Reconstruction)

- Developed a low-cost system that allows a mobile robot to create 3D reconstructions and build maps.
- Used Robotic Operating System to integrate the whole system, the 3D sensor, a board with Operating System, and a server.
- Used a 3D camera (Intel RealSense R200) to receive the cloud point and create a map using SLAM.
- Integrated a mobile robot platform with a board (Intel UP board) to communicate with a server.

Aquaman *2016*
(C, Communication protocols, Analog/Digital Sensors, and LabView)

- Created a device that can give measurements of the movements of the swimmer's hand.
- Used an STMF32f3 microcontroller that includes a tri-axis gyroscope, accelerometers, a MARG sensor array, and a tri-axis magnetometer.
- Used Madgwick's Inertial Measurement Unit (IMU) and IHRS sensor fusion algorithm to obtain the angles in degrees for each axis.

CERTIFICATION

Project Management Institute Certified Associate in Project Management (CAPM)

EDUCATION

University of Washington *2020 - 2021*
Master of Science in Technology Innovation – Robotics
GPA: 3.87/4.0

Instituto Tecnológico y de Estudios Superiores de Monterrey *2012 - 2017*
Digital Systems and Robotics Engineering
GPA: 3.58/ 4.0

ECE Paris Ecole d'Ingénieurs *Study Abroad Summer 2017*
Certificate Program: Augmented and Virtual Reality in our Society, Sensors and Network Infrastructure

University of Dubai *Study Abroad Winter 2015*
Certificate Program: How to Do Business in the Middle East – A Dynamic Experience of the Rich Arabic Culture

TECHNICAL SKILLS

Programming Languages: Python, C++, Java
Software: LabVIEW, MATLAB, RoboDK
CAD Tools: Autodesk Fusion360, CATIA
Sensors: Proximity, Position, Pressure, Temperature, Force, Image
Operating Systems: Windows, Linux, MAC OS, Robotic Operating System
Databases: MySQL, Oracle, Firebase
Web technologies: JavaScript, CSS, HTML