Héctor López González

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Location: Gold Coast, Australia

Nationality: Mexican

Date of Birth: 02 January 1996

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PERSONAL PROFILE

Innovative and results-driven Mechatronics Engineer with over 5 years' experience in process control, embedded systems and virtual reality. Expertise in industrial automation, software development, and implementing cutting-edge technologies to develop complex systems that enhance productivity and efficiency. Proven track record of leading cross-functional teams, exceptional problem-solving abilities and thriving in high-pressure environments. Committed to leveraging advanced engineering skills to develop innovative solutions in mechatronics and related fields.

EDUCATION

Master of Science in Engineering
Universidad Iberoamericana, Mexico City, Mexico | January/2020 – March/2022
- GPA 9.9/10
- Awards: Honorable Mention.
- Thesis: Formation Control of Thermal Agents for Distributed Heat Sensations in Immersive Virtual Reality Applications
- Relevant Courses: Advanced Process Control, Engineering Systems Design, Advanced Biomechanics.

Bachelor of Mechatronics and Production Engineering
Universidad Iberoamericana, Mexico City, Mexico | August/2014 – May/2019
- GPA 9.2/10
- Awards: Academic Excellence and Honorable Mention.
- Thesis: Parallel Cable Robot for Storage Facilities.
- Relevant Courses: Process Dynamics, Embedded Systems, Process Control, Power Systems, Industrial Automation.

Bachelor of Mechatronics and Production Engineering (Exchange program)
University of Wollongong, New South Wales, Australia | June/2018 – December/2018
- Relevant Courses: Robotics and Flexible Automation, Game Engine Essentials.

PROFESSIONAL APPOINTMENTS

Universidad Iberoamericana, Mexico City, Mexico

UNIVERSITY LECTURER | January/2022 – December/2023
- Designed and conducted a master's level course on Virtual Reality and Haptic Devices Programming.
- Delivered weekly lectures on Circuits Engineering and Embedded Systems Engineering to over 100 undergraduate students, achieving a 95%+ course satisfaction rate.

POSTGRADUATE RESEARCH ASSISTANT | January/2020 – March/2022
- Developed 4 immersive virtual reality environments and 3 innovative haptic devices, resulting in 1 published paper, 2 conference presentations and 1 radio program feature.
- Mentored and provided technical guidance to postgraduate researchers on advanced control systems, robotics and virtual reality, contributing to 3 successful project completions.
- Assessed a virtual reality kayak simulation connected to a robotic seat to help CVA patients regain balance and designed a haptic paddle.

UNDERGRADUATE RESEARCH ASSISTANT | August/2015 – January/2020
- Programmed and implemented embedded systems for robotics and multi-agent systems for the Institute of Applied Research and Technology (INIAT), contributing to more than 5 successful projects.
- Assisted the professor of Automation Engineering and Laboratory Class.
- Assisted the professor of Process Dynamics Class.
- Guided prospective students of Mechatronics and Production Engineering and Computer Technologies and Telecommunications Engineering through the university facilities.

Ultrasist S.A. de C.V., Mexico City, Mexico

LEAD FRONTEND ENGINEER | March/2023 – December/2023
- Led a team of 6 programmers to deliver 2 web applications, conducted client meetings, managed client relationships, delegated tasks and developed front-end solutions using React.Js.
- Achieved a 50% increase in front-end performance through optimized code and user interface enhancements.

SENIOR SOFTWARE ENGINEER | July/2022 – March/2023
- Developed APIs in C# and contributed to front-end development using React.Js.
- Successfully delivered 2 confidential projects in 50% of the allocated time.

Freelance (Self-Employed), Mexico City, Mexico

EMBEDDED AND PROCESS CONTROL SYSTEMS ENGINEER | April/2020 – June/2022
- Managed client relationships, designed process control systems, developed embedded software, programmed PLCs, designed mechanical parts, created prototypes and led teams to deliver multiple successful projects.
- Installed, updated, repaired and programmed 17 security drone port systems for *"Grupo Tecnológico Santa Fe S.A. de C.V."* across Mexico.
- Programmed, repaired, and designed mechanical parts of an industrial face mask production system, increasing system productivity by 100% for *"Cubre-Bocas.mx"*.

<u>All Robot, Mexico City, Mexico</u>

EMBEDDED AND PROCESS CONTROL SYSTEMS ENGINEER | April/2019 – December/2020

- Implemented process control systems, developed embedded software, programmed PLCs, selected and installed sensors and actuators, and designed mechanical parts for a 9 modules automation testing system and developed embedded software for 2 courses for professionals in the automotive industry.

TEACHING EXPERIENCE

<u>Universidad Iberoamericana, Mexico city, Mexico</u>

Postgraduate Courses

Virtual Reality and Haptic Devices Programming | August/2022 – December/2023

- Method: Taught face-to-face
- Designed comprehensive course titled "Virtual Reality and Haptic Devices Programming"
- Created detailed lesson plans, lecture notes and laboratory practices.
- Organized class lectures and set deadlines for projects.

Undergraduate Courses

Circuits Engineering and Laboratory | January/2022 – December/2023

- Method: Taught face-to-face
- Organized class lectures and laboratory and set deadlines for projects.

Embedded Systems/Microcontroller Programming for Design | January/2022 – December/2023

- Method: Taught face-to-face
- Organized class lectures and laboratory and set interdisciplinary projects scopes.

RESEARCH EXPERIENCE

<u>Universidad Iberoamericana, Mexico city, Mexico</u>

Postgraduate Research Assistant | January/2020 – March/2022

- Aided the director of the Institute of Applied Research and Technology in projects involving virtual reality, formation control and medical rehabilitation. (https://iniat.ibero.mx)

Undergraduate Research Assistant | August/2016 – January/2020

- Aided the director of the Institute of Applied Research and Technology in projects involving mobile robots, formation control, artificial intelligence, and parallel robots.

PUBLICATIONS

H. Lopez-Gonzalez, E. G. Hernandez-Martinez, R. d. J. Portillo-Velez, E. D. Ferreira-Vazquez, J. J. Flores-Godoy, and G. Fernandez-Anaya, "Formation Control for Thermal Multi-agent Systems," *2021 IEEE URUCON*, 2021, pp. 390-394, doi: 10.1109/URUCON53396.2021.9647108.
https://ieeexplore.ieee.org/document/9647108

CONFERENCES

META+IBERO, 2022
- Topic: Opportunities and Challenges of the Metaverse in Mexico
- Venue: Universidad Iberoamericana, Mexico City, Mexico.

URUCON, 2021
- Topic: Formation Control for Thermal Multi-agent Systems
- Venue: Online (COVID).

CERTIFICATIONS

ITIL Foundation Certificate in IT Service Management (No. GR671539832HL) - PeopleCert
IELTS ACADEMIC 8.5/9.0 (CEFR level C2) – Test Report Number: 23MX501316LOPH030A – British Council

LANGUAGE & ADDITIONAL SKILLS

Languages: Spanish (Native Speaker), English (Proficient C2), German (Basic), Portuguese (Basic)

Professional Skills: Leadership, Problem-Solving, Critical Thinking, Adaptability, Creativity, Innovation, Quick Learning, Team-work, Verbal/Non-verbal Communication, Stress Management.

Technical Skills: Advanced Control Systems, Robotics, Embedded Systems, PLC Programming, Circuit Design, Soldering, Prototyping, Internet of Things, Artificial Intelligence.

Programming Languages: Embedded C, C, C++, C#, Ladder Logic, Python, MicroPython, React.js, SQL, PHP, HTML, CSS, JavaScript.

IT Software: MATLAB, MATLAB-SIMULINK, Autodesk AutoCAD, Autodesk Inventor, Allen Bradley CCW, Siemens TIA Portal, Unity, MQTT, VICON Nexus.

COURSES

VR Development Fundamentals with Oculus Quest 2 and Unity – www.udemy.com (2021)
Unreal VR Dev: Make VR Experiences with Unreal Engine in C++ – www.udemy.com (2020)
Unreal Engine C++ Developer: Learn C++ and Make Video Games – www.udemy.com (2020)
Introduction to VR with Unity – www.udemy.com (2020)
Introduction to Game Development with Unity – www.udemy.com (2019)
Body Language for Entrepreneurs – www.udemy.com (2018)
Python – www.teamtreehouse.com (2017)

EXTRA-CURRICULAR ACTIVITIES

Engineering Science Post Graduate Technical Council:
- Master's degree student representative (November/2020–April/2022)

Electronics Engineering Student Society:
- Events Director and Public Relations. (January/2016–December/2018)

Sports:
- Third-division professional football player at *Atlante F.C.* and *C.D. Guadalajara (Chivas)*. (June/2010–June/2015).
- Football player for Mexican teams reserves of *Cruz Azul F.C.*, *Club América*, *Deportivo Toluca F.C.* and *Atlante F.C.* (January/2006–June/2010).

Social Work:
- Taught football classes for kids in poverty and/or dangerous situations inside the *Malinalco* community. (January/2019–July/2019)

Volunteering:
- Managed donations and resources for earthquake affected zones in Mexico after the 19th of September 2017.

INTERESTS

Innovation, Artificial Intelligence, Virtual Reality, Robotics, Automation, Programming, Sustainability, Internet of Things (IoT), Domotics, Sports Technology.

REFERENCES

Eduardo Gamaliel Hernández Martínez (PhD)
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