



MAXIMILIANO ROJAS LEMA

Electrical Civil Engineer / Master of Engineering Sciences



Profile

As an engineer and researcher, I am trained to develop comprehensive solutions that address both the problem and its context. I enjoy tackling challenges in a structured manner, from their definition to potential steps and execution goals, always considering and adapting to unforeseen circumstances. My foundations are resilience, creativity, curiosity, and applied knowledge.



Work Experience

present

Robotics Engineering

Renshi Robotics Studio, Shenzhen, China - Remote

- Import and integrate a biologically inspired flexible structure into a stomach model.
- Implement a Python interface for:
 - Controlling spherical joints independently within $\pm 30^\circ$ cone constraints.
 - Detecting collisions between the structure and the stomach environment.
- Write a script to randomize joint angles with collision-free initialization.
- Fix issues with the 3D models.
- Documentation.

Robotics Engineering

Renshi Robotics Studio, Shenzhen, China - Remote

- Creation and setup of a mobile robot for Isaac Sim.
- Creation and configuration of training environments for Isaac Lab.
- Adaptation of “Sim-to-Real Transfer for Mobile Robots with Reinforcement Learning: from NVIDIA Isaac Sim to Gazebo and Real ROS 2 Robots”.

Robotics Engineer

Renshi Robotics Studio - Shenzhen, China - Remote

- Developed a synthetic data generation and object detection system using NVIDIA Isaac Sim and Replicator.
- Modeled 3D scenes with six object categories, each featuring five variations in randomization.
- Built an object detection pipeline based on the UR10 palletizing example.
- Generated and collected domain-randomized synthetic datasets.
- Trained a domain-randomized object detection model for real-world applications.



Contact



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Technologies

- Python
- C++
- Pytorch
- CAD Design (Fusion 360)
- Robotic Simulation / Digital Twins (Isaac Sim)
- ROS/ROS2
- Unreal Engine
- PCB Design (Eagle)



Languages

English

B2

Spanish

Native

Robotics Engineer

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Robotics Engineer

Nazarbayev University Institute of Smart Systems and Artificial Intelligence - Astana, Kazakhstan - Remote

- Mentoring a master's candidate in the area of deep reinforcement learning applied to robotics.
- Solving technical problems in reinforcement learning.
- Designing digital twins for simulation in Isaac Sim and Isaac Lab.
- Designing and testing training pipelines.

Robotics Engineer

PUCV School of Computer Science - Valparaíso, Chile

- Design of a humanoid robot for interaction with children with autism spectrum disorder (PUCV university research).

Assistant Developer

Valparaíso Makerspace - Valparaíso, Chile

- Internship
- Design of didactic introductory experiences in electronics.
- Technical Assistant for Fondecyt (R&D): "New Challenges for Education in Chile: Support for Independent Living of Adults with Intellectual or Developmental Disabilities" (1190789).



Education

Publication in Q1 WoS Scientific Journal

MDPI - "Automation Control and Robotics in Human-Machine Cooperation"

- "Easy-to-Use Deep Reinforcement Learning Library for AI-Based Mobile Robots in Isaac Sim" Applied Sciences 12, no. 17: 8429.
- [Click here to view the article.](#)

Specialization in Modern Robotics: Mechanics, Planning, and Control, Electronic Engineering, Robotics, and Mechatronics

Northwestern University, Coursera

- Kinematics and Dynamics.
- Motion Planning and Control.
- Robotic Manipulation and Mobile Robots.
- Mobile Manipulation.
- [Click here to view the certificate.](#)

Foundations of Project Management

Google, Coursera

- [Click here to view the certificate.](#)

Master of Engineering Sciences, Electrical Engineering

PUCV

- Thesis: "Deep Reinforcement Learning Library for AI-Based Mobile Robots in Isaac Sim."

Degree in Electrical Civil Engineering

PUCV

- Thesis: "Development of a Service Robot Platform for Deep Learning and Robotics Applications."