Emanuel Muñoz

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Main languages: Python, Matlab, C++
Frameworks: Torch, Scikit, TF, OpenCV
Familiar: Golang, TS, JS, CSS, HTML

Senior Peruvian student of Electrical Engineering at UTEC. Interested in **AI, Computer Vision**, and Robotics for global or social issues. Worked on projects related to surgical robotics, autonomous vehicles, machine learning, and control with **six indexed publications**. Collaborated with material science project at **Yale University**. Accepted into selective AI and Robotics **RISS program** at **Carnegie Mellon University**. Currently, I am working on my thesis project based on **Deep Reinforcement Learning** applied on mobile robots for exploration tasks.

EDUCATION

Universidad de Ingeniería y Tecnología - UTEC | Electrical Engineering

March 2016 - Expected December 2021 | Lima, Perú

Upper Top-Fifth | Senior Undergraduate Student | **Awarded with Full Academic Scholarship**
Cum. GPA: 4.00 | GPA in Peruvian scale: 15.86/20.00 | **Thesis project:** AI-curiosity-driven exploration in mobile robots.

EXPERIENCE

UTEC - CONCYTEC | Robotics Research Assistant

March 2020 – Currently | Lima, Perú

- Collaborated in a **two-year government-funded project** to implement a nonlinear controller in a surgical robot platform based on haptic control. | Published **two indexed papers**, one pending. | **Tech:** ROS, Python, Gazebo.
- Implemented a **hybrid learning controller** for torque-position transformation in manipulator robots
- Designed and implemented a camera framework for feedback sensing using **computer vision** and filtering techniques.

Yale University - Schroers Lab | Research Assistant

Jan - March 2020 | New Haven, CT, US

- Sponsored by Research Experience for Peruvian Undergraduates | Supervised by Jan Schroers and Sungwoo Sohn.
- Designed and developed two new alloys with potential mechanical properties for industrial applications.

ISA REP | Digital Image Processing Intern

Jun – Dec 2019 | Lima, Perú

- Designed and developed two methods for corrosion detection based on **computer vision and AI** for decision making.
- Launched the first phase of automatic supervision of +1000 km powerlines using drones and machine learning.
- Developed framework for semantic labeling, classifier training, and GUI prototype. | **Tech:** scikit, Keras, OpenCV, PyQT

PROJECTS

Minsky |

- Collaborated in open source web-based projects for Minsky company.
- Participated in COVID-19 oriented hackathons proposing web-based solutions.

Navigation robotics with AI |

- Developed an actor-critic agent applied on a mobile robot for exploration and navigation tasks. | **Tech:** Gym, Torch

Image Enhancer |

- Built a model architecture to automate beauty-enhancing of photos using image manipulation. | **Tech:** TF, scikit .

Autonomous Mobile Robotics |

- Designed and implemented algorithms for **autonomous** motion planning and exploration on mobile robots in real and simulated environments. | **Tech:** ROS, Gazebo
- Built complete frameworks for mobile robotic applications and **published four papers** showing results.

ADDITIONAL INFORMATION

2021 Selected for research internship at **Carnegie Mellon's Robotics Institute Summer Scholars (RISS) program**
2021 Accepted to participate on **VISTA Vision Science and AI Summer School** at **York University**
2020 Selected out of 300+ students by **REPU** to work on nano science research internship at **Yale University**
2019 Accepted with financial support in the **International Summer School on Deep Learning for Robot Vision** at Chile

INTERESTS

Deep Learning, decentralized tech, science divulgation, start-up, table tennis, Sherlock Adventures, cooking