

Arturo Flores Alvarez – Amazon AI PhD Fellow

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EDUCATION

- University of California, Los Angeles (UCLA) – California, United States** Sep, 2022 – Jun, 2027
PhD Candidate in Mechanical Engineering (Systems & Control+ Robotics) – PI: Dr. Dennis Hong – MS conferred in S24
- Teacher Assistant: Introduction to MATLAB (undergrad) and Kinematics of Robotics Systems (grad)
- Swiss Federal Institute of Technology, Zurich (ETH) – Zurich, Switzerland** Jul, 2023 – Aug, 2023
RobotX Fellowship – (Acceptance ratio: 8.9%) + Visiting Researcher in S24
- Universidad Nacional de Ingeniería (UNI) – Lima, Peru** Mar, 2014 – Sep, 2020
Bachelor of Science in Mechatronics Engineering, Engineer Title (Academic Qualification – Dissertation: 19/20)
PPA: 13.714/20 (commendation of 'Very Good', literal scale 'A': References on my Transcript)

RESEARCH EXPERIENCE

- ETH, Zurich – Deep Reinforcement Learning** Zurich, Switzerland
RobotX Fellowship - Computational Robotics Laboratory (CRL) July 2023 – Ongoing
References: PhD. Stelian Coros, PhD. Fan Shi
- Developed a Deep Reinforcement Learning (RL) solution to teach a simulated Robotis OP3/OP2 humanoid robot how to kick a ball in a Soccer Environment ([demo](#)). Simulated and Implemented on Hardware.
 - Utilized Legged Gym library, and Pytorch for simulation and training, and libtorch for hardware implementation.
- Visiting Researcher - Computational Robotics Laboratory (CRL)*
- Developed multi-skill policies for a humanoid using Generative Adversarial Motion Priors to achieve human-like motion in diverse, dynamic real-world conditions; ongoing implementation leverages C++ onnxruntime ([sim](#))
- University of California, Los Angeles – Humanoid Robotics** California, US
Graduate Research Experience – Robotics and Mechanisms Laboratory (RoMeLa) Jan, 2023 – Ongoing
Computer Vision for Soccer Humanoids – RoboCup (Winner, Adult Size Humanoid Soccer, RoboCup 2024 Eindhoven)
- Implemented a customized Yolov5/Yolov8 neural network in the robot Artemis ([demo](#)) for real-time detection and depth-sensing of soccer-field landmarks (RoboCup 2023 – Bordeaux, France).
 - Developed and implemented a real-time ball tracking system on a humanoid robot's neck mechanism to enhance performance during soccer matches of Artemis using ROS2, Pytorch, TensorRT and PyBEAR.
 - Enhanced a public dataset for custom object detection in robotics using semi-supervised labeling and Roboflow augmentation, enabling fast on-site model fine-tuning for the competition
- Humanoids for Entertainment Industry – Netflix*
- Developed a Python/C++ software stack for upper-body control of a medium-sized humanoid ([demo](#)), incorporating a finite state machine for lifelike movement and safe interaction and transitions, using Gazebo, ROS1/2, Moveit, and OMPL, deployed in Docker for real-time operation and global exhibitions (Comic Con New York, London, Lucca 2024).
 - Developed a C++ ONNX sim2real pipeline to deploy imitation learning for robot [balancing](#) and [walking](#) policy.
 - Developed ChatBots, a specialized conversational AI system for RoMeLa's humanoids with fully offline RAG architecture using Python and Jetson Orin Nano hardware, integrating compact LLMs ([GitHub](#) | [Demo](#))
- University of Rhode Island – Artificial Intelligence** Rhode Island, US
Undergraduate Research Experience – Research Intern Dec, 2021– Mar, 2022
References: PhD. Marco Alvarez
- Carried a deep study of MLP-Mixer's representations using Centered Kernel Alignment as a similarity measure
 - Demonstrated that this Google AI architecture had recurrent ill-condition patterns in their last layers and presented the results during an AI workshop.
 - Worked under the framework of TensorFlow with GPU acceleration, CKA Google library, Scipy, and Matplotlib.
- Universidade Estadual de Campinas – Controls** Campinas, Brazil
Undergraduate Research Experience – Research Intern Aug, 2019– Dec, 2019
References: PhD. Grace S. Deaecto, PhD. Lucas N. Egidio
- Created a switched cooperative control technique for networked systems using a time-varying Lyapunov function and linear matrix inequalities.
 - Demonstrated that this approach was less computationally expensive to solve than state-of-art techniques.
 - Implemented this technique in real-time in an Inverted Pendulum and an Active Suspension of Quanser, using MATLAB and Simulink and wrote a scientific article.

PROFESSIONAL EXPERIENCE

Institute for Human and Machine Cognition (IHMC) – Humanoid Robotics

Humanoid Robot Control Intern

Pensacola, US

July, 2025- Sep, 2025

References: PhD. Beomyeong Park, PhD. Robert Griffin

- Led hardware bring-up of H1-2 robot whole-body control stack, conducting extensive real-time debugging and torque-control parameter optimization to enhance stability and locomotion performance through iterative testing, system log analysis, and comprehensive documentation.
- Developed Whole-Body Model Predictive Control (WBMP) robustness testing framework with progressive disturbance evaluation and optimized footstep generation algorithms, enhancing simulation-based locomotion stability across Nadia and H1-2 humanoids.
- Integrated command functionalities between WBMP and IHMC's proprietary simulators (RDX for teleoperation, SCS2 for automated experiment logging), implementing Xbox controller interface for intuitive robot operation in both simulation and real-world environments using JAVA.
- Contributed to Imitation Learning and Reinforcement Learning pipeline development for Unitree H1 and IHMC's custom Alexander humanoid platform.

AGP eGlass Group – Glazing Technology for Luxury Automotive Industry

Research & Development Intern

Lima, Peru

Oct, 2020 – Jun, 2021

- Designed several innovative prototypes for a glass connector with embedded photovoltaics technology and its manufacturing process for an awarded program with the Swedish car manufacturer Volvo.
- Validated experimental solutions for the technologic line of Lux Fractal – ambient car lightning systems –using glass embedded electronic light sources and microcontrollers for ambient lighting of Tesla cars.

TECHNICAL WORK

Journal Publications

Flores, A. M., Egidio, L.N., Deaecto, G.S., “Cooperative Networked Control Based on a Time-Varying Lyapunov Function”, Journal of Control Automation and Electrical Systems 32, *Springer*, 533–542, 2021 ([link](#))

Conference Exhibitions

Zhu, M., Liu, H., **Flores, A. M.**, et al. "Kid COSMO: A Humanoid Robot Movie Character." ICRA 2025 EXPO, **Best Exhibition Award Winner!**

Conference Publications

Flores, A. M., Zargarbashi, F., Liu, H., et al. "Learning to Walk in Costume: Adversarial Motion Priors for Aesthetically Constrained Humanoids." Contributed Paper, IEEE Humanoids Conference, 2025 (Accepted)

Liu, H., Zhu, M., **Flores, A. M.**, et al. "From Screen to Stage: Kid Cosmo, A Life-Like, Torque-Controlled Humanoid for Entertainment Robotics." Contributed Paper, IEEE Humanoids Conference, 2025 (Accepted)

Flores, A. M., Morales, A., Campos, G., Gelso, J., “Energy Efficiency Using IOTA Tangle for Greenhouse Agriculture “. Information Management and Big Data. SIMBig 2021, *Communications in Computer and Information Science*, vol 1577. Springer, April, 2022 ([link](#))

Cevallos, B., Jamanca, G., Napan, J., **Flores, A. M.**, Vásquez, Y., “FISHER-X: A Bioinspired Robotic Alternative for the Exploration of the Oceanic Environment on a Jupiter’s Moon”. *IAC*, September, 2022 ([link](#))

SPECIALIZATION COURSES

Udemy - CUDA Parallel Programming on NVIDIA GPUs (HW and SW) ([link](#))

Mar, 2025 – April, 2025

- Acquired foundational knowledge of GPU architecture, CUDA programming, memory optimization, and parallel processing techniques across Windows and Linux platforms.

NASA L’SPACE - Proposal writing & evaluation experience ([link](#))

May, 2023 – Aug, 2023

- Gained experience in writing, reviewing, and scoring proposals through the lens of a NASA reviewer

HONORS, SCHOLARSHIPS, AWARDS

Humanoid Free Walk Winner IEEE RAS – Austin, Texas

Dec, 2023

First place in the competition organized at the International Conference of Humanoid Robots IEEE -RAS 2023. Full sponsorship by UCLA. The fastest humanoid in the world.

Research Intern in Research Experience for Peruvian Undergraduates (REPU) – Computer Science

Dec, 2021

Research program that complements the education of talented Peruvian undergraduate students by organizing scientific research internships in the best institutions of the world. Extremely competitive selection process.

European Rover Challenge 2020 finalist – ESA

Aug, 2020

Finalist in the Poland space robotics competition sponsored by ESA. Final results: 18TH place from 40 competitors around the world.

Telemetry Award - NASA

Apr, 2019

Best Telemetry proposal in the Human Exploration Rover Challenge -NASA 2019 organized in Huntsville, Alabama.