Jose E. Hernandez Cancino

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Robotics Engineer and **MSc Artificial Intelligence candidate** in the Erasmus Mundus EMAI program. Experienced in deep learning and computer vision for robotic perception and control. My current research focuses on **concept edition in latent diffusion models** and **Vision–Language–Action (VLA) models** for robotic manipulation.

Research Interests: Multimodal Models (VLM, VLA), Generative AI, Latent Diffusion Models, Embedded Knowledge Representation.

Ongoing Research

2025   **Vision-Language-Action model for bimanual robotic manipulation of textile objects – MSc Thesis**
Development of a light-weight VLA model for bimanual textile manipulation on the SO-ARM101 robotic arm.
Supervisor: Prof. Danijel Skocaj, dr. Domen Tabernik   View

2025   **Unlearning Identity Information in Latent Diffusion Models – MSc Research**
Development of a concept editing method to prevent identity reproduction in the Arc2Face model by targeting key–value representations in cross-attention layers.
Supervisor: Darian Tomasevic, PhD Candidate   View

Education

2024 – 2026 (Expected)   **Erasmus Mundus Joint MSc in Artificial Intelligence**
University of Ljubljana – Sapienza University – Pompeu Fabra University

2021 – 2024   **BSc in Robotics and Digital Systems Engineering**
Tecnológico de Monterrey, Mexico   **GPA 96 /100**

Work / Lab Experience

Mar. 2022 – Present   **SAVEWARE — Co-Founder, Machine Learning Engineer**, *Remote*
- Developed an attention-based model predicting trailer-loading duration with uncertainty estimates, enabling generation of operational efficiency metrics.   View
- Designed and implemented an automated data processing system and interface to analyze operations, generate workload metrics, and provide efficiency reports.

Jan. 2024 – Feb. 2024   **Rice University — Robotics Research Internship, Kavraki Lab**, *Houston, USA*
- Integrated motion planning with Samsung's SceneGrasp model for multi-object 3D shape reconstruction and grasp pose estimation with RGB-D data on a UR5 robot.   View

Relevant Academic Projects

2025   **Uncertainty-Aware Road Obstacle Identification with Conformal Guarantees**
Sapienza University   View
Trained a model for unknown-object detection and evaluated uncertainty using conformal prediction.
- Reproduced Noguchi et al. (2024) "Road Obstacle Detection based on Unknown Objectness Scores" for estimating unknown-objectness in road-scene segmentation using a ResNet with a sigmoid head for multi-class classification.
- Implemented conformal prediction to provide statistical guarantees on expected empirical risk minimization (ERM) error.

2024   **Autonomous Localization and Navigation System for Differential Drive Robot**
Tecnológico de Monterrey   View
Developed a vision / LiDAR-powered autonomous vehicle for reactive navigation on NVIDIA Jetson.
- Implemented odometry fusion with landmark detection and an Extended Kalman Filter for accurate localization.
- Applied image-based visual servoing for precise positioning and grasping, nonlinear control for smooth point-to-point navigation, and integrated reactive collision-avoidance algorithms using LiDAR data.

2023   **Deep Reinforcement Learning for Trajectory Planning of a Robotic Arm**
Tecnológico de Monterrey   [View](#)

Developed a trajectory-planning policy for a xArm6 robotic manipulator. MuJoCo simulation and real robot.

- Implemented Deep Deterministic Policy Gradient (DDPG) and Hindsight Experience Replay (HER) to learn a policy for point-to-point motion and precise target positioning in joint space.

Course Certificates

2024   **Machine Learning Specialization**, *DeepLearning.AI (Coursera)*,   [View](#)

2024   **CS50's Introduction to Artificial Intelligence with Python**, *HarvardX (edX)*,   [View](#)

Technologies

AI/ML   PyTorch, TensorFlow, Scikit-learn, Pandas, NumPy, OpenCV, ASP, CUDA, Stable Diffusion, Neo4J

Robotics   ROS, Jetson, SLAM, LiDAR, CAN

Tools   Docker, AWS, Git, SQL, Linux

Embedded   FreeRTOS, MQTT

Programming Languages

Experienced   Python, C/C++, MATLAB

General   JS, R

Languages

Spanish (Native) — English (Fluent, C1) — Italian (Basic, A2)