Harel Hernandez

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Technologies

Programming: Python, SQL, C++, MATLAB

ML/DL: PyTorch, TensorFlow, scikit-learn, Keras, OpenCV

Data Science: Pandas, NumPy, SciPy, Matplotlib, Seaborn

Tools: Git, Docker, AWS, MLflow, Jupyter, Power BI, Tableau

Experience

Research Assistant *Guadalajara, MX*
Universidad de Guadalajara *Aug 2023 – present*

- Developed real-time object detection pipelines using YOLOv5 and NVIDIA DOPE for 6D pose estimation in robotic pick-and-place tasks.
- Implemented a visual servoing control loop for a 5-DOF robotic arm using OpenCV and ROS, enabling dynamic target tracking and closed-loop manipulation.
- Designed and validated nonlinear motion controllers using Lyapunov stability theory for trajectory tracking in simulated and physical robots.
- Led experimental setup and calibration of robotic manipulators for vision-based control, including camera-to-robot transformations and intrinsic calibration.
- Supervised undergraduate students on inverse kinematics, Jacobians, and gravity compensation during practical lab sessions.

Data Analyst *Guadalajara, MX*
Casa de La Joya *June 2023 – Dec 2024*

- Queried over 50,000 transaction records using SQL to uncover customer purchasing patterns, seasonal peaks, and top-performing jewelry categories.
- Developed interactive Tableau dashboards for stakeholders to monitor KPIs such as monthly revenue, customer churn, and inventory turnover in real-time.
- Performed customer segmentation with k-means clustering (scikit-learn), revealing key regional buying behaviors across southern Jalisco, which informed targeted marketing strategies.
- Built SARIMA-based time series models in Python to forecast monthly sales with an average MAPE of 15%, supporting demand planning and procurement decisions.

Software Developer *Guadalajara, MX June*
Orange Studio *2019 – May 2023*

- Developed and launched mobile video games for Android and iOS using Unity and C#.
- Engineered gameplay systems, physics interactions, and UI/UX components to deliver immersive and intuitive player experiences.
- Applied advanced optimization techniques (e.g., object pooling, dynamic resolution scaling) to reduce memory usage and maintain 60 FPS across low-end devices.
- Managed source code and branching workflows in Git, enabling efficient team collaboration, issue tracking, and CI/CD integration using GitHub Actions.

Education

University of Guadalajara *Jan 2025– Dec 2026*
M.Sc in Robotics and Artificial Intelligence

- **Coursework:** Robotics, Machine Learning, Computer Vision, Deep Learning, Statistics.

University of Guadalajara *Aug 2021– Dec 2024*
BS in Robotics Engineering

- GPA: 3.9/4.0
- **Coursework:** Robotics, Machine Learning, Computer Vision, Control Systems, Embedded Systems, Linear Algebra, Calculus.

Certifications

SQL DataBase Management
Comprehensive course covering advanced SQL concepts including database design, optimization, and complex queries

- Issuer: Udemy

Data Science for Business
Course focused on applying data science techniques to solve business problems, including data analysis, visualization, and predictive modeling

- Issuer: Udemy

LLM engineering
Course focused on building LLM-powered applications using retrieval augmented generation (RAG) and multimodal capabilities, including agent development and prompt engineering techniques

- Issuer: Udemy

MLOps
Course focused on end-to-end ML model development lifecycle, including model monitoring, automated testing, CI/CD pipelines, and production deployment using industry-standard tools like Docker, MLflow, and Kubernetes

- Issuer: Udemy

Projects

Human Resources Classification *github.com/Harel/HRC*

- Developed a machine learning model to predict employee attrition using a dataset of HR records
- Tools Used: Python, scikit-learn, Pandas, NumPy
- Achieved 90% accuracy using a Random Forest Classifier

Tablue Dashboard *tableau.com/Harel/pj*

- Created an interactive dashboard in Tableau to visualize sales data and customer demographics
- Tools Used: Tableau, SQL
- Dashboard included KPIs, sales trends, and customer segmentation analysis

Times Series Forecasting *github.com/Harel/TSF*

- Developed a time series forecasting model to predict monthly sales using historical data
- Tools Used: Python, Pandas, NumPy, Matplotlib
- Achieved 85% accuracy using an ARIMA model