# El Ouarrat Haytam

Rabat, Morocco · eo.haytam@gmail.com · +212 708052763 · Portfolio

**I help Computers See.**

## Technical Skills

**Vision Libraries:** OpenCV, PCL (Point Cloud Library), CUDA, Optuna, Gymnasium
**Languages:** Python, C++, MATLAB, C#
**Frameworks:** PyTorch, TensorFlow, JAX, Keras, Scikit-learn, XGBoost, LightGBM
**Developer Tools:** Git, Docker, AWS, Azure, MLflow, W&B

## Experience

**Doctoral Researcher**　　　　　　　　　　　　　　　　　　　　　　　　*October 2025 – Present*
*International Artificial Intelligence Center of Morocco*, Rabat, Morocco
- Design and implementation of image-based and direct visual servoing controllers using Chaumette-style IBVS formulations, focusing on stability and convergence properties.
- Integration of Neural Radiance Fields and 3D Gaussian Splatting for visual localization, enabling high-precision navigation from sparse images without explicit depth sensors.
- Developed end-to-end Python pipelines for camera models and rendering to evaluate robustness in novel-view tracking and visual servoing.

**Computer Vision Engineer Intern – R&D**　　　　　　　　　　　　　　　*Mar. 2025 – Aug. 2025*
*SteelSeries*, Lille, France
- Optimized CNNs and Transformers to replace traditional keypoint detection, boosting runtime efficiency by 80% for real-time applications.
- Developed 2D pattern recognition and template matching pipelines using custom feature engineering for the SteelSeries Moments software.
- Improved keypoint matching accuracy by 16% to 82% through model optimization and ensemble methods for complex gameplay footage.

**Team Lead – Perception & Vision Systems**　　　　　　　　　　　　　　*Feb. 2024 – Sept. 2024*
*TLSe Racing*, Toulouse, France
- Led 7 student engineers in building a real-time 3D cone detection and localization system using YOLO and neural network inference optimization.
- Developed a stereo vision pose estimation and LiDAR–camera fusion pipeline, improving spatial accuracy by 26% through sensor fusion.
- Automated multi-sensor calibration routines using bounding box propagation and regression models for geometric parameter estimation.

## Education

**Mohammed VI Polytechnic University**　　　　　　　　　　　　　　　　Rabat, Morocco
Doctor of Philosophy, Visual Navigation in Neural Scene Representations　　*Expected Sept. 2029*
**Engineering School of the University of Toulouse**　　　　　　　　　　Toulouse, France
Master of Engineering, Robotics and Smart Systems　　　　　　　　　　　*Oct. 2025*