

# DHIEDDINE BARHOUMI

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## EDUCATION

### National Institute of Applied Sciences and Technology (INSAT)

National Engineer's Degree in Computer Science

Tunis, TN

Sept. 2020 – Present

**Relevant Courses:** Linear Algebra, Database Management, Algorithms and Data Structures, Deep Learning, NLP, Cloud Computing, Big Data, Optimization Methods, Reinforcement Learning

### Pioneer High School Hammam-Lif

Scientific baccalaureate

Ben Arous, TN

Sept. 2017 – June 2020

Top 5% of bachelors with an excellent average grade.

## EXPERIENCE

### AI in Security Systems Intern

All Points Smart Solutions

Jun. 2024 – Aug. 2024

Amman, JO

- Developed AI Security Systems for historic sites (e.g., Ajloun Castle, Amman Citadel), integrating real-time threat detection and automated alerts.
- Enhanced ANPR Accuracy by 20%, optimizing recognition for high-speed and low-light conditions on major streets in Amman.
- Integrated AI Models with Milestone VMS for intelligent object detection and motion tracking, automating alerts and cutting false alarms by 30%.
- Tested AI Surveillance Solutions for diverse environments, refining system adaptability.
- Managed Multiple Projects in Parallel, balancing resources and meeting strict deadlines.
- Adapted to International Work Environment, gaining experience in cross-cultural collaboration and project execution.
- Skills:** AI Surveillance, ANPR, Computer Vision, Deep Learning, Python, Project Coordination, Resource Management

### Computer Vision Intern

DidaMind

Jun. 2023 – July. 2023

Ben Arous, TN

- Conducted research on multiple computer vision algorithms, choosing YOLOv8 for optimal speed and accuracy.
- Fine-tuned YOLOv8 for detecting angle and gusset objects in boxes, achieving 92.5% precision and 60% mAP50-95.
- Deployed the model as a real-time API on Microsoft Azure, integrating it with a dashboard for defect detection.
- Automated quality control, triggering alerts for misaligned or missing objects as boxes moved on a conveyor.
- Collaborated with a multidisciplinary team to replace manual defect detection for an industry client, boosting efficiency by 30%.
- Completed Microsoft Azure AI Fundamentals training and certification during the internship.
- Skills:** YOLOv8, Computer Vision, Microsoft Azure, API Development, Real-Time Systems, TensorFlow, Python

## PROJECTS

### Cloud-based Scalable Machine Learning Pipeline

Sept. 2024 – Oct. 2024

- Designed an end-to-end machine learning pipeline using Vertex AI for automated training and deployment.
- Built real-time data ingestion with Cloud Functions and Pub/Sub, enabling continuous data updates.
- Deployed TensorFlow models on Cloud Run with auto-scaling for efficient performance.
- Integrated continuous retraining into the pipeline to ensure models evolve with incoming data, improving accuracy over time.
- Streamlined model updates and version control through a CI/CD pipeline with Cloud Build.
- Skills:** Google Cloud Platform, Vertex AI, TensorFlow, Cloud Run, Pub/Sub, Cloud Functions, Continuous Retraining, CI/CD

### Reinforcement Learning-based Robot Navigation

Sept. 2023 – Dec. 2023

- Designed a reinforcement learning-based system to navigate complex indoor environments.
- Simulated realistic home-like environments in Gazebo with dynamic obstacles.
- Leveraged ROS2 for seamless integration, utilizing RViz for real-time monitoring of the robot's path and sensor data.
- Collaborated with colleagues, employing GitHub for CI/CD, ensuring robust version control and seamless updates.
- Implemented the TD3 algorithm with a custom reward function to optimize path planning and obstacle avoidance.
- Skills:** Reinforcement Learning, ROS2, RViz, Gazebo, TD3, Python, GitHub, CI/CD, Simulation Environments

## SKILLS

**Programming:** Python, C, C++, Java, SQL (BigQuery, Oracle, Mysql)

**Machine Learning & AI Frameworks:** Tensorflow, Keras, Pytorch, LangChain

**Cloud & MLOps:** Google Cloud Platform, Vertex AI, BigQuery, Docker, CI/CD, GitHub Actions, IBM Watson, Microsoft Azure

## LANGUAGES

**English:** Professional Fluency ( TOIEC : C1 965/990 )

**French:** Professional Fluency

**Arabic:** Native Fluency

## CERTIFICATES

**Professional Machine Learning Engineer** (Google Cloud)

Oct. 2024

**TensorFlow Professional Developer** (DeepLearning.AI)

Feb. 2024

**Deep Learning Specialization** (DeepLearning.AI)

Oct. 2023

**AI Engineering Professional Certificate** (IBM)

Jul. 2023

**AI Fundamentals** (Microsoft Azure)

Jun. 2023