# MOHAMED AMINE MARNISSI

## Research engineer in artificial intelligence

@ mohamed.amine.marnissi@gmail.com ✉ Adresse: Rue Moussa Ibn Noussair, cité Erriadh 2 📍 Sousse, Tunisie
in linkedin.com/in/amine-marnissi-168227a2/ 📞 +216 54 14 41 41 github.com/AmineMarnissi

**Qui suis-je ?**

Actually, I am a research engineer in machine learning/deep learning at the LATIS laboratory and at Enova Robotics. My research interests revolve around computer vision (detection, location, segmentation, classification, etc.). I am also interested in optimization, loss functions, domain adaptation, and related topics in artificial intelligence. I am also an enthusiast of electronics, robotics and competitive programming.

## EXPERIENCE

### PhD Thesis Project - Detection of suspicious events by multi-spectral cameras in a robotic application using Deep Learning approaches.

**National Engineering School of Sfax (ENIS)**

📅 March 2019 – Now     📍 Sfax, Tunisia

- Implement a deep learning approach to improve the visual quality of thermal images and detection of suspicious individuals.
- Develop a technique for transfer from thermal to visible imaging (RGB).
- Design and develop a new solution to combine visible and thermal data to better detect suspicious people and events.
- Deploy the models developed on the PearlGuard robot.

### Project: Crowd density estimation with Deep Learning.

**National Engineering School of Sousse (ENISo)**

📅 March 2018 – December 2018  📍 Sousse, Tunisia

- Comparative studies between learned/handcrafted features.
- An overview of deep learning techniques as function extractors for crowd classification.
- Testing various approaches (supervised and non-supervised) of deep learning.
- Approval of the proposed solution in public databases.

### Project: Design and development of a web application for stock management

**National Engineering School of Sfax (ENIS)**

📅 February 2016 – June 2016     📍 Sfax, Tunisia

- Design of the different diagrams with the UML methodology.
- Implementation using Symfony3, HTML5, CSS3, JQUERY, BOOTSTRAP.

## EDUCATION

### Doctor in computer vision and artificial intelligence

**National Engineering School of Sfax (ENIS), SFAX, Tunisia**

📅 March 2019 – March 2022

### Research master degree in Intelligent and Communicating Systems (ICS),

**National Engineering School of Sousse (ENISo), Sousse, Tunisia**

📅 2017 – 2018

### Engineering degree in computer science,

**National Engineering School of Sfax (ENIS), Sfax, Tunisia**

📅 2013 – 2016

### Preparatory Institute in Mathematics and Physics

**Preparatory Institute for Engineering Studies of Bizerte(IPEIB), Bizerte, Tunisia**

📅 2011 – 2013

### Baccalaureate in computer science

**High School 14 janvier, Bizerte, Tunisie**

📅 2010

## LANGUES

**Arabe** ●●●●●
**Français** ●●●●●
**Anglais** ●●●●○
**Allemand** ●●○○○

# PROJECTS

- Development of a deep learning pipeline for person detection in a thermal camera **[YOLOv5]**.
- Deployment of object detection models on the platform **NVIDIA® Jetson™** using **DeepStream SDK** and **NVIDIA® TensorRT™**.
- Development of a model to generate the mask of the fence from a real image **[Pix2Pix]**.
- Collect images from google images containing a broken fence and segment these images using **[Adaptive Gaussian thresholding]**.
- Adapted a classification model to distinguish between broken and unbroken fences.
- Creation of a deep learning model based on a generative adversarial network **(TE-GAN)** to improve poor quality thermal images **[Pytorch]**.
- Creation of a deep learning model based on Faster-RCNN and Adversarial learning to detect people from thermal or visual cameras in real time.
- Adaptation of a deep learning model based on the **[Transformer]** technique to generate masks from thermal images.
- Development of a graphical interface to analyze thermal and visible video streams based on the **[pyqt5]** library.

# COMPUTER SKILLS

- **Theoretical skills:** Deep Learning, Convolutional Neural networks, Auto-encoders, LSTMs.
- **Deep Learning Frameworks:** Keras, Tensorflow, Pytorch.
- **Programming languages:** Python, Java, J2EE, C, C++, JavaScript, HTML, XML, SQL, PL/SQL,MATLAB.
- **Database tools:** MySQL, Oracle.
- **Plateformes:** Raspberry Pi.
- **Design methodologies:** Merise, UML2.

# SOCIAL SKILLS

- Helpful, very sociable.
- Good technical skills in general and passion for programming.
- Good general skills and strong expertise and interest in algorithms.
- Good ability to learn new things.
- Motivated attitude to organize scientific events and able to work alone or as part of a professional team.

# PUBLICATIONS

- **M. A. Marnissi, H. Fradi, A. Sahbani and N. Essoukri Ben Amara** "*Bispectral Pedestrian Detection Augmented with Saliency Maps using Transformer*", In: the 17th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications (VISAPP) 2022.
- **M. A. Marnissi, H. Fradi, A. Sahbani and N. Essoukri Ben Amara,** "*Feature distribution alignments for object detection in the thermal domain*", In: The Visual Computer Journal. 2022.
- **M. A. Marnissi, H. Fradi, A. Sahbani and N. Essoukri Ben Amara,** "*Unsupervised thermal-to-visible domain adaptation method for pedestrian detection*" In: Pattern Recognition Letters (PRL) 2021.
- **M. A. Marnissi, H. Fradi, A. Sahbani and N. Essoukri Ben Amara,** "*Thermal Image Enhancement using Generative Adversarial Network for Pedestrian Detection*" In: the 25th International Conference on Pattern Recognition (ICPR) 2020.
- **M. A. Marnissi, H. Fradi, and J. Dugelay,** "*On the Discriminative Power of Learned vs. HandCrafted Features for Crowd Density Analysis*" In: International Joint Conference on Neural Networks (IJCNN) 2019.

# REFERENCES

**Prof. Najoua Essoukri Ben Amara**
@ najoua.benamara@eniso.rnu.tn
✉ Pôle technologique de Sousse Route de Ceinture Sahloul Sousse 4054, Tunisie