(+33) 0610670742
Marseille, France
cartelgouabou@gmail.com

Arthur Cartel Foahom Gouabou

AI Researcher - Data Scientist

GitHub: cartelgouabou
Website: cartelgouabou.github.io

Passionate AI enthusiast with a strong engineering background, specializing in AI applications for real-world challenges. PhD research focused on user-friendly AI tools for skin cancer detection. Experienced in mentoring students and skilled in Deep Learning, Computer Vision, and effective communication. Currently driving AI innovation at DMS Logistics, committed to shaping a brighter future through technology.

Skills

Tools	Python, Tensorflow, Scikit-Learn, R, Matlab, Git, LaTeX, MySQL, Docker, Kubernete, Flask
Technical skills	Deep Learning, Medical Imaging, Machine Learning, Computer Vision, Time Series
Transversal skills	Public Speaking, Technical Writing, Project Management, Team Management, Teaching
languages	French (Native), English, Ghomalah

Education

PhD in Computer Science, *Aix-Marseille University* — Oct 2019 — Mar 2023
Master's degree in Mechatronics, *National Advanced School of Engineering of Sud-Alsace, GPA: 4.0/4.0* — Sep 2018 — Aug 2019
Engineer's degree in Mechatronics, *National Advanced School of Engineering of Douala, GPA: 3.33/4.0* — Sep 2015 — Aug 2017
Bachelor in Mechatronics, *National Advanced School of Engineering of Douala, GPA: 3.33/4.0* — Sep 2012 — Aug 2015
University Fellowship, Aix-Marseille University — 2019 — 2022

Technical Experience

AI Researcher - Senior Data Scientist — **Aug 2023 —**
DMS Logistics — *Marseille, France*

- Lead strategic AI projects, reporting to the CTO, to drive growth in container logistics solutions.
- Establish metrics, performance analyses, and experiments to solve business challenges and enhance client tools.
- Optimize terminal appointments, evaluate logistics performance, automate processes, and handle time series data.
- Collaborate with cross-functional teams to influence strategy and improve operations.
- Execute end-to-end ETL processes, ensuring streamlined data analysis and insight generation.
- Apply Machine Learning (Scikit-learn, TensorFlow/Keras, PyTorch) to analyze datasets, predict trends, and manage data using SQL and NoSQL for feature storage and prediction serving.
- Develop data pipelines, integrate insights, build custom tools, and serve APIs using Flask.
- Use Docker and Kubernetes for scalable, portable, and efficient application deployment.
- Authored scientific articles research findings in time serie forecasting.

Research Assistant Professor — **Sep 2022 — Jul 2023**
Institut Fresnel — *Marseille, France*

- Conducted research in computer vision and medical imaging.
- Delivered lectures and practical sessions Computer Science, Deep Learning and signal processing.
- Supervised Master's students during their thesis projects and tutored projects, providing guidance and support to ensure successful completion.

Researcher in Computer Vision — **Oct 2019 — Aug 2023**
LIS Laboratoire d'Informatique et Systèmes — *Marseille, France*

- Implementation and training of deep learning algorithms for the automated diagnostic of melanoma.
- Benchmarked state of the art deep learning CNN for image classification and segmentation.
- Authored scientific articles, created and presented posters, and delivered oral presentations to communicate research findings in computer vision and deep learning.

Researcher Intern in Computer Vision — **Apr 2019 — Sept 2019**
LIS Laboratoire d'Informatique et Systèmes — *Marseille, France*

- Designed a computer aided diagnosis system for skin cancer lesion (Melanoma).
- Use of HOG, GLCM and LBP algorithms to extract features.
- Dimensionality reduction of feature vectors with PCA and RFE algorithms.
- Training, testing and validation of machine learning classifiers such as SVM, Logistic Regression and MLP.
- Training, testing and validation of convolutional neural networks.

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Head of technical department **Jan 2018 — Aug 2018**
Mapon Africa *Douala, Cameroon*

- Planned and supervized the installations of GPS devices.
- Drafted the technicals documents.
- Provided technical support to customers.
- Training of technicians.
- Competitive intelligence.

Engineer **Jun 2017 — Dec 2017**
Mapon Africa *Douala, Cameroon*

- Installed GPS devices on vehicles.
- Configured and tested GPS devices before installation.

Technician Intern **Jun 2016 — Sep 2016**
Autohaus Volkswagen *Douala, Cameroon*

- Computer aided diagnosis of embedded system (using VAG, ELSA Win).
- Did maintenance and reparation of on-board vehicle systems.

Academic experience

Research Assistant Professor (hourly volume: 192h/year) **09/2022 — 08/2023**
Faculty of Sciences of the University of Aix-Marseille *Marseille, France*

- Operation of computers - Licence 1 preparation to scientific studies : Tutorial and practical work
- Programming - Bachelor in mathematic and computer science : Practical works
- Introduction to software engineering - Bachelor in computer science : Practical works
- Embedded systems - Master degree in TSI : Tutorial and practical work
- Programming - Bachelor in computer science : Practical works
- Signal acquisition and processing - Master degree in EEEA : Practical works
- Digital processing of measurement - Bachelor in SPI : Practical works

Teaching Assistant (hourly volume: 64h/year) **10/2019 — 08/2022**
IUT Networking and Telecommunications, Aix Marseille University *Marseille, France*

- Transmission mathematics: Tutorial and practical work
- Communication Writing of internship report (MS WORD), presentation (MS Powerpoint): Tutorial and practical work
- Database (SQL): Practical work

Supervision

Master's student **03/2023 — 08/2023**
University of Strasbourg.
Internship for Master's thesis project.
Topic: "Detection, study, and reduction of outlier data in medical images using deep learning".
Technical environment: Python.

Master's student **03/2022 — 08/2022**
Ecole centrale de Marseille.
Internship for Master's thesis project.
Topic: "Segmentation of skin cancer images using convolutional neural networks".
Technical environment: Python, Matlab.

Publication

Arthur Cartel Foahom Gouabou, *et al. Forecasting Empty Container availability for Vehicle Booking System Application*. In: *Proceedings of the 28th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems (KES-2024)*, 2024. *(Proceedings in preparation)*

Faouzi Hakimi, Tarek Khaled, Mohammed Al-Kharaz, **Arthur Cartel Foahom Gouabou**, Kenza Amzil. *Towards a Digital Twin Modeling Method for Container Terminal Port*. In: *Proceedings of the 28th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems (KES-2024)*, 2024. *(Proceedings in preparation)*

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Jilliana Monnier, **Arthur Cartel Foahom Gouabou**, Meryem Serdi, *et al.* Automated melanoma detection. An algorithm inspired from human intelligence characterizing disordered pattern of melanocytic lesions improving a convolutional neural network. *Journal of the American Academy of Dermatology*, 2024.
Arthur Cartel Foahom Gouabou, *et al.* Computer Aided Diagnosis of Melanoma using Deep Neural Networks and Game Theory: application on Dermoscopic Images of Skin Lesions In: *International Journal of Molecular Sciences*, 2022, vol. 23, no 22, p.13838.
Arthur Cartel Foahom Gouabou, *et al.* End-to-End Decoupled Training for Long-tailed Classification applied on Skin Lesion Classification from Dermoscopic images In: *Electronics*, 2022, vol. 11, no 20, p.3275.
Arthur Cartel Foahom Gouabou, *et al.* Rethinking decoupled training with bag of tricks for long-tailed recognition. In: *2022 Digital Image Computing: Techniques and Applications (DICTA)*, 2022, Sydney (Australie) (Oral presentation).
Jilliana Monnier, **Arthur Cartel Foahom Gouabou**, Meryem Serdi, *et al.* Automated detection of melanoma. Comparing a Convolutional Neural Network (CNN) approach with an algorithm assessing disorder in the pattern of pigmented lesions, intended to mimick onco-dermatologists visual analysis. In: *European Society for Medical Oncology Congress (ESMO)*. Elsevier, 2022.
Jilliana Monnier, **Arthur Cartel Foahom Gouabou**, Meryem Serdi, *et al.* Automated detection of melanoma. Comparing an algorithm based on the characterization of pattern disorder of the lesion, mimicking dermatologist practice, with a convolutional neural network approach. In: *European Academy of Dermatology and Venereology Congress (EADV)*, 2022.
Arthur Cartel Foahom Gouabou, *et al.* HMLoss: une nouvelle fonction de coût robuste au déséquilibre de classe. *GRETSI 2022: XXVIIIème Colloque*, 2022, Nancy (France) (Poster presentation).
Jilliana Monnier, **Arthur Cartel Foahom Gouabou**, Meryem Serdi, *et al.* Détection automatique du mélanome : comparaison d'un algorithme fondé sur la caractérisation de l'aspect désordonné de lésions mélanocytaires mimant la pratique des dermatologues, avec une approche par CNN (Convolutional Neural Network) *Annales de Dermatologie et de Vénéréologie-FMC*, 2021, vol. 1, no 8, p. A135.
Arthur Cartel Foahom Gouabou, *et al.* Ensemble Method of Convolutional Neural Networks with Directed Acyclic Graph Using Dermoscopic Images: Melanoma Detection Application *Sensors*, 2021, vol. 21, no 12, p. 3999.
Jilliana Monnier, **Arthur Cartel Foahom Gouabou**, Caroline Gaudy-Marqueste, *et al.* Impact d'un artefact fréquent sur la détection automatique du mélanome à partir d'images dermoscopiques : approche deep learning combinée à l'algorithme Support Vector Machine *Annales de Dermatologie et de Vénéréologie*, 2021, vol. 147, no 12, p. A82.

Projects

DIAMELEX Project: Helping to diagnose melanoma by example **Oct 2019 — Feb 2023**
https://anr.fr/Projet-ANR-20-CE45-0026/

- Diamelex is a research project funded by the French National Research Agency (ANR) for an amount of 513,950 euros in collaboration with the start-up Anapix medical, the Marseille Cancer Research Center (CRCM) and the Computer Science and Systems Laboratory (LIS). The project concerns the development of a computer aided diagnosis system for melanoma based on deep learning techniques. I actively participated in this project as a researcher and my research activities in this project led to the publication of five scientific papers in international and national journals and conferences.

Voice command from a Raspberry pi (tutored project) **Oct 2018 — Jan 2019**

- State of the art of techniques for speech recognition.
- Handling of the Google platform Assistant SDK.
- Drafted the project specification.
- Realized a prototype using Raspberry pi 3.

Design of a driver assistance system for vehicles **Jun 2017 — Dec 2017**
https://hal-amu.archives-ouvertes.fr/hal-02308475/document

- Drafted the project specification.
- Realized a prototype using a microcontroller.

Activities

IM team of LIS LAB: Research Presenter, Some Workshop, Creator/Facilitator 2019 — 2022
Volunteer, ETIC Association: Conferences organization, Academic campaign 2014 — 2016
Hobbies: swimming; cycling; basketball