Riad Boussoura

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AI & Visual Computing Engineer

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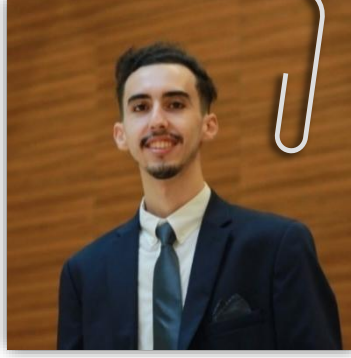

« R&D Engineer | Artificial Intelligence & Computer Vision »

Profile Summary

R&D Engineer specializing in Computer Vision, Deep Learning, and data synthesis. Proven experience in developing and implementing novel algorithms for complex imaging challenges, demonstrated through a key role in revolutionizing the 360° video stitching pipeline at GoPro. Eager to apply my expertise in data science to solve cutting-edge problems in a PhD or R&D capacity.

Education

Sorbonne Paris Nord University

- Master of Intelligent Systems and Visual Computing
  Sep 2024 - Sep 2025
  - Awarded a scholarship of excellence by L'École Universitaire de Recherche.
  - Focused on advanced image and video processing, deep learning, and multimedia content coding.
- Master of Engineering and Innovation in Images and Networks
  Sep 2023 - Mai 2024
  - Specialized in signal and image processing, information theory, and advanced programming.
  - Worked on several computer vision research projects.

University of Science and Technology HB

- Master of Visual Computing
  Sep 2022 - Jun 2023
  - Focused on data mining, 3D imaging, ML/DL, and game theory applications.
- Bachelor of Software Engineering
  Sep 2019 - Jun 2022
  - Combined strong theoretical foundations in algorithms, databases, and system design with practical expertise in software development and IT project management.

Samsung Innovation Campus

- Data Science & Artificial Intelligence Program
  Jun 2021 - Sep 2021
  - Selected among 30 participants nationwide for an intensive 4-month Data Science and AI program.
  - Mastered mathematics, probability, statistics, and linear algebra relevant to AI development.
  - Applied advanced machine learning and deep learning algorithms using Python.

Experiences

AI Algorithm Ingineer

Mar 2025 - Sep 2025

GoPro Paris

- Architected an end-to-end pipeline for AI-based image stitching, creating a large-scale photo realistic synthetic dataset in 3D to enable a data-driven, supervised learning approach.
- Developed a deep learning model in PyTorch that leverages wider image context to predict a more accurate alignment flow, directly solving critical edge-stretching artifacts found in previous methods.
- Engineered a custom multi-component loss function that significantly improved the final stitch quality, resulting in demonstrably smoother and more geometrically consistent images.
- Analyzed model performance on challenging parallax cases and presented key findings and future R&D proposals to the computer vision and algorithms teams.

Chief Technical Officer

Jan 2023 - Nov 2024

BargMe Startup

- Led and coordinated a multidisciplinary team to develop "Sawem" a web/mobile shopping assistant and budget management app, gaining valuable **leadership experience**.
- Designed and executed a **barcode recognition** feature for the app's shopping assistant feature, enabling users to scan product barcodes via their smartphone cameras.
- Developed a backend infrastructure for personalized AI-based shopping recommendations using **Python**, **Scikit-learn**, and **Pandas** for customer data analysis.
- Managed deployment on a Debian-based VPS, ensuring scalability and reliability, and delivered cross-platform mobile functionality via **React Native**.

Data Management and Software Optimization Intern

Aug 2024 - Sep 2024

Headquarters - Caisse d'Epargne Île-de-France

- Gained experience in managing client data sheets, ensuring accuracy and consistency for operational decision-making.
- Conducted performance testing and flaw detection for internal banking software, identifying bottlenecks and contributing to system optimization.
- Assisted in data organization and reporting tasks, improving data accessibility and workflow efficiency for the Daily Banking Support Department.
- Participation in the "Campus 2024" mission with travel to partner campuses.

Technical Content Creator (3D and AI)

Jan 2022 - Dec 2023

SkillDino (InspirationTuts on YouTube)

- Authored educational articles and video scripts covering 3D modeling, VFX, and emerging **AI trends**, reaching an audience of over **300,000 subscribers**.
- Produced tutorials on integrating computer vision techniques, such as object tracking and augmented reality, into 3D workflows using **Blender**, **Unity**, and **OpenCV**.
- Researched and explained advancements in AI-driven 3D animation and rendering, emphasizing their impact on industry-standard software development.

Full Stack and Automation Engineer

Feb 2022 - Jun 2022

Entreprise Nationale de Transport Maritime de Voyageurs

- Developed a web application to automate document management and archiving.
- Digitized administrative documents to improve company efficiency.
- Utilized the **MERN Stack (MongoDB, Express.js, React.js, Node.js)** for full-stack development.

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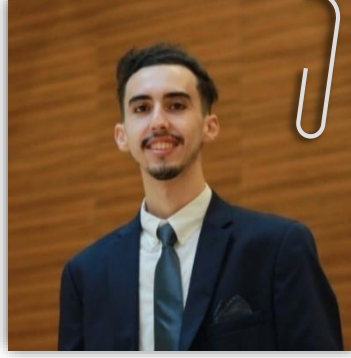

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Skills

Programming Languages

- **Expert:** Python, JavaScript, TypeScript, Java, PHP
- **Proficient:** C, C++, C#, Matlab
- **Design Patterns:** Mastery in Object-Oriented Design, SOLID principles, and MVC architectures, RAG/Agentic system

AI/ML Libraries & Frameworks

- **Deep Learning:** PyTorch, TensorFlow, Keras, FastAI, Hugging Face Transformers
- **Computer Vision:** OpenCV, Scikit-Image, MediaPipe, Dlib, YOLO (Ultralytics)
- **Natural Language Processing:** spaCy, NLTK, Mistral AI APIs, OpenAI GPT APIs, BERT, LangChain
- **Optimization & Probabilistic Models:** SciPy, Pyro, PyMC3

Data Science & Visualization

- **Data Analysis & Processing:** Pandas, NumPy, Dask
- **Data Visualization:** Matplotlib, Seaborn, Plotly, Altair, Bokeh

Databases

- **SQL Databases:** MySQL, PostgreSQL, SQLite, Microsoft SQL Server
- **NoSQL Databases:** MongoDB, Firebase, Redis

3D Modeling & Animation

- **Software:** Blender, Autodesk Maya, Unreal Engine, Unity
- **Expertise:** 3D modeling, texturing, rigging, animation, real-time rendering, ray tracing

Cloud Platforms & MLOps

- **Cloud Platforms:** AWS (S3, EC2, Lambda), Google Cloud Platform, Microsoft Azure
- **MLOps Tools:** MLflow, Kubeflow, Docker, Kubernetes, TensorBoard

Languages

- **English:** Proficient (IELTS Band 7.5 ~ C1)
- **French:** Native
- **Arabic:** Native
- **Japanese:** Beginner

Relevant Projects

Mistral Msg: LLM Powered Messaging App

Nov 2024

- Built with **Next.js** in **TypeScript** and powered by **Mistral AI** using their **public API**.
- Enabled **instant messaging** with AI context-based reply suggestions and **prompt-based** reply rewriting.
- Demonstrated innovation in Mistral AI's **LLM** integration within web applications.

Research: License Plate Detection In Dusty Environment

Mai 2024

- Implemented license plate detection using a **YOLOv8 model** for object detection, combined with **EasyOCR** for character recognition in challenging conditions.
- Processed datasets like the **Medialab LPR**, **AOLP**, and **French License Plate datasets** to train the detection pipeline.
- Included **data augmentation** techniques, including random flipping, cropping, rotation, and Gaussian blur, to enhance model robustness in varied environmental conditions.
- Compared traditional techniques (**HOG + SVM**, **Morphological Image Processing**) against deep learning approaches to optimize performance.

3D Reconstruction with Stereo Vision

Mai 2023

- Developed a simple stereovision system using **OpenCV** to reconstruct 3D coordinates of matched features in images.
- Performed camera calibration, **SIFT feature extraction**, and correspondence matching for stereo image pairs.
- Calculated **3D point clouds** using triangulation and visualized results using **Matplotlib**.
- Demonstrated the capability of reconstructing known object dimensions in controlled experimental settings.

DeOldify: AI Image Colorization

Jan 2023

- Adapted the **DeOldify** model, leveraging **GAN-based architecture**, for automated image colorization of grayscale content, with applications in manga colorization and historical photo restoration.
- Utilized **PyTorch** for model implementation and **FastAI** for training optimizations.
- Improved edge sharpness and color vibrancy through advanced preprocessing, including screentone removal and shading enhancements.

Awards & Hackathons

1st Prize | Google Developer Group DevFest '21 AI Hackathon

- Developed a Python-based fall detection system, leading to an invitation for a TV interview to discuss the project's impact.

Excellence Award | National Innovation Competition

- Architected an AI-powered accessibility app for real-time sign language translation using an LSTM model and a custom video dataset. (Ministery of Telecommunication)

Judges' Favorite | Samsung Innovation Campus

- Built an advanced driver-assistance system that detects distraction and drowsiness using MediaPipe's 3D face mesh, deployed for real-time inference on an Nvidia Jetson Nano.