

# ABABACAR SEMBENE

 07 58 20 66 14

 [ababacar.sembene@inria.fr](mailto:ababacar.sembene@inria.fr)

 <https://ababacar-sembene.github.io/>

 Grenoble

## PROFIL

Graduate of École Polytechnique and ENS Paris-Saclay with strong expertise in applied mathematics, machine learning, and computer vision. Currently pursuing a PhD in AI for healthcare, focusing on modern generative models and their applications to medical data. Experienced in medical imaging and NLP across both academic and industrial settings.

## EDUCATION



**ENS Paris-Saclay** : Master MVA - Mathématiques, Vision, Apprentissage

 Oct. 2022 - Oct. 2023

**Courses:** Deep Generative Models, Convex Optimization, Graphs in ML, Optimal Transport, 3D Point Clouds

**Projects:** Flow Matching, Spatio-Temporal Alignments, Sparse Iterative Closest Point, Stochastic Optimization



**École Polytechnique de Paris** : Polytechnician Engineer Program

 Sep. 2019 - Aug. 2022

**Courses:** Machine Learning Foundations, Monte Carlo Methods, Optimization, Stochastic Modeling, Quantum Physics

**Projects:** Deep Neural Network implemented in C++, Byzantine Vulnerabilities in Distributed Learning



**Université Cheikh Anta Diop** : Bachelor's degree in Mathematics, Computer Science

 Dec. 2016 - Aug. 2019

Graduated with High Honors (valedictorian)

## INTERNSHIPS & WORK EXPERIENCE



**PhD Student - INRIA**

 Nov. 2025 - Present

Generative models for unsupervised anomaly detection in spatio-temporal data: Application to medical imaging.

**Tools & Technologies:** VSCode, PyTorch, MONAI, ITKSnap



**Data Scientist & Engineer - MEDADOM**

 Jan. 2024 - Aug. 2025

Contributing to cutting-edge research in data science, specializing in advanced NLP, statistical data analysis, and machine learning engineering. Skilled in AWS, Tableau, and leveraging Large Language Models for innovative applications, including a co-piloting project with Amazon Bedrock.

**Tools & Technologies:** VSCode, AWS, Tableau, Zeppelin, PySpark, NLTK, Amazon Bedrock, JavaScript, HTML



**Research Intern - GUERBET**

 Apr. 2023 - Sep. 2023

Developed a machine learning tool to classify DICOM series into relevant categories, such as liver CT scan phases and prostate MRI sequences, using advanced deep learning techniques like LSTM and ResNet. The project aimed to automate the analysis and organization of medical imaging data.

**Tools & Technologies:** VSCode, Microsoft Azure, LaTeX, TensorBoard, PyTorch, TensorFlow, MONAI



**Artificial Intelligence Data Scientist - OMIZ & X PROJETS**

 May 2022 - July 2022

Developed a model to identify yoga poses from a single image without pre-labeled data, designed for integration into a mobile app for remote yoga classes. The model provided real-time posture feedback to alert teachers of alignment errors, utilizing Pose Estimation techniques and OpenCV.

**Tools & Technologies:** VSCode, Mediapipe, OpenCV, Matplotlib



**Data Scientist Intern - INSIGHT SIGNALS**

 Mar. 2022 - Aug. 2022

Calibrated a multi-agent model to simulate urban mobility in the Île-de-France region, evaluating its performance against real-world traffic data. Developed algorithms for optimal car route planning and alternative route suggestions, enhancing the efficiency of the urban mobility simulation.

**Tools & Technologies:** Word, PowerPoint, Excel, VSCode, NetworkX, GraphHopper, scikit-learn

## SKILLS

**Programming & Tools:** Python, C++, JavaScript, R, VSCode, Jupyter, Git, LaTeX, AWS, Azure

**Machine Learning:** Scikit-learn, XGBoost, PyTorch, TensorFlow, OpenCV, MONAI

**Data & Visualization:** Pandas, NumPy, Tableau, Matplotlib, TensorBoard

**Domains:** Computer Vision, NLP, Generative Models, Optimal Transport, 3D Point Clouds

**OS:** Linux, Windows

## HOBBIES & INTERESTS

Drawing

Horse Riding

Competitive Coding (HackerRank)

Photography

Infographics

## LANGUAGES

French : Fluent (C2)

English : Proficient (C1)

Wolof : Native



