



# Mohamed Mehdi Ketata

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Biomedical engineer with strong specialization in **AI for medical imaging, computational modeling, and biomechanics**. Experienced in clinical data processing, ML model design, image segmentation, and motion analysis. Skilled in producing **reproducible research**, scientific reports, and interdisciplinary collaboration with clinicians and engineers. Motivated to pursue a PhD in **medical imaging, AI for health, biomedical engineering, or computer vision**.

## Education

**École des Mines de Saint-Étienne – Diplôme d'ingénieur (ICM)** | 2022 – 2025

Major: Data Science

- Machine Learning, Deep Learning, Statistical Modeling, Medical Imaging
- Software engineering, applied mathematics, optimization

**Master in Biomedical Engineering and Design** | 2024 – 2025

**Université Carlos III, Madrid, Espagne**

**ERASMUS** | 2023

- Biomedical device design, biomechanics, clinical imaging analysis

**Classes préparatoires MPSI/MP**

**IPEST** | 2020 – 2021

- Intensive math, physics, and engineering preparation

## Professional Experience

**Master thesis** **Institut Orthopédique Rizzoli, Bologne (Italie) | 2025**

- Built ML models for **automatic bone and soft tissue segmentation** from X-ray images
- Developed a **3D registration pipeline** enabling patient-specific motion tracking
- Improved accuracy of clinical assessments through CV-based tracking

**Industrial/Research Project** **École des Mines de Saint-Étienne | 2025**

- Predictive modeling of bone position during gait using OpenPose
- Developed data-cleaning scripts, feature extraction methods, and evaluation metrics
- Delivered reproducible documentation and research-grade analysis

**Innovation Project** **Startup OSMI | 2024**

- Contributed to development of custom 3D-printed orthopedic devices for animals
- Prototyped designs, optimized materials, improved user-centered product features
- Worked closely with founders to test and iterate on product concepts

**Engineering Intern** **DefSystèmes, Saint-Étienne | 2024**

- Developed interoperability modules for DEFLAB simulation environment
- Supported internal teams through documentation and training

**Production Intern** **Focal, Saint-Étienne | 2023**

- Followed industrial workflows and participated in quality control procedures

## Technical Skills

### Data Science & AI

- Python: NumPy, Pandas, Scikit-learn, PyTorch
- Machine Learning, Deep Learning, Computer Vision
- TensorFlow, OpenCV, OpenPose, Jupyter

### Data & Software

- SQL, Git, Excel, XSLT

### Engineering & 3D Tools

- 3D Slicer, FEBio, MATLAB, C/C++, RStudio

### Soft skills

- Scientific rigor, autonomy, structured thinking, interdisciplinary collaboration, communication

## Languages

French (C1), English (B2), Spanish (B2)

## Extracurricular

- BDE Member – École des Mines (2022–2023)
- ComeSeeToo: cultural inclusion project (2022)

## Interests

Tennis, contemporary dance, modeling, painting