MÉLANIE BRÉGOU

Image Processing Research Scientist - Dual master's graduate in AI, Computer Vision & AR/VR.
Passionate about space, aeronautics, e-health and tech, eager to contribute to innovation in these fields.

in melanie-bregou   ✉ melanie.bregou92@gmail.com   🌐 portfolio

EXPERIENCE

Supersonic Imagine - *Image Processing Research Scientist*
October 2024 - Present (Aix-en-Provence, France)

- Develop and optimize **image processing, computer vision, and AI** algorithms for **ultrasound imaging**. Develop a **deep learning model** for tumor **detection, segmentation, and classification**, and contributed to its **integration** into premium ultrasound devices.
- Explored ultrasound physics, collaborated with clinicians to learn scanning techniques, understand anatomy and diagnostics. Gained insights into **data collection protocols** and the **regulatory process for AI in medical devices**.

European Space Agency - *Mixed-Reality Intern*
March - Septembre 2024 (Cologne, Germany)

- Designed and implemented an **augmented reality** (AR) application to **assist astronauts during medical procedures** on extended missions where telemedicine and returning to Earth are not feasible.
- Developed a **computer vision pipeline** integrating Magic Leap 2's RGB camera and depth camera, enabling **real-time pose detection** and generating precise 3D information essential for medical procedures in AR.

Hillo - *Data Scientist Intern*
Summer 2023 (Paris, France)

- Developed **machine learning models** for diabetic patient data, integrating **time-based events** (meal times, insulin injections) with quantitative measurements of **blood glucose levels** from historical data.

Foch Hospital - *Data Analyst Intern*
Summer 2022 (Suresnes, France)

- Developed a graphical interface to **process, visualize and analyze clinical data** for infectious pulmonary diseases, including COVID-19 biomarker research.

EDUCATION

Institut Polytechnique de Paris   *Graduated in October 2024*

Double **Master's degree** with courses including **Computer vision, AR/VR, AI,** Computer graphics, Human-computer interfaces, Social robotics, Image processing, Digital content protection, 3D reconstruction, e-Health and Bio imaging
Projects : HoloLens & MetaQuest development, Lung segmentation, Surgical Tools detection, Photogrammetry, Mobile Apps...

Télécom SudParis   *2021 - 2024*

Bachelor & Masters level in a highly competitive French "Grandes Ecoles" specialized in Computer science
Classes include: **Machine learning, Deep learning, Signal Processing,** Electronics, Development, Mathematics, **e-health track**
Polytechnique Montréal (Exchange semester) : **Aeronautics**, AI, Biomedical Imaging, Entrepreneurship

Classe préparatoire aux Grandes écoles : Saint-Louis Paris   *2019 - 2021*

Intensive preparation in Mathematics, Physics, Computer Science for the competitive exams to enter "Grandes Ecoles"

SKILLS

Python (PyTorch, Tensorflow, OpenCV, Sklearn, LangChain...), Unity (C#), C++, Java, SQL, Matlab, Bash, Git, Blender, R, React
Teamwork, Communication, Leadership, Fast learner, French (C2), English (C1), Spanish (B2), German (A1)

ACTIVITIES & INTERESTS

Hackathons : First prize obtained developing a **machine learning model** predicting the conservation of species at Genopole
Associations : Corporate relations officer at Student Art club, Member of the **photography club**

Sport & Music : Tennis (**Gold medal** at tennis national French championship UNSS 2019 in team), Bouldering, Guitar, Piano

Traveling : Canada (6 months), Germany (6 months), UK (2 months), Ireland (1 month)