Marie Pelissier-Combescure

PhD & **Engineed** in Vision • 3D Modeling • Learning

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About me

As a PhD and engineer in computer vision and 3D modeling, I have expertise in research, analysis, and programming, along with strong skills in machine/deep learning applied to visual data. My PhD and multidisciplinary teaching experience have helped me develop strong autonomy, a clear sense of responsibility, and the ability to adapt to a wide range of sectors and working environments. Rigorous, organized, and a team player, I am eager to apply my skills in vision and artificial intelligence to the healthcare field, with the goal of improving diagnostic accuracy and patient care.

Skills

Theoretical and Practical Skills

Vision : Image processing • Interest point detection • Multi-scale curvilinear saliency • Image quality assessment | ***Machine Learning*** : Machine learning • Deep learning: object detection and image classification • 3D segmentation • Transformers | ***3D Modeling*** : 3D meshes • Geometric feature extraction • 3D saliency estimation • Best view selection | ***Statistics*** : Descriptive • Similarity • Inferential • Classification • Clustering • Dimensionality reduction • Anomaly detection

Technological Skills

Programming : Python (vision libraries, PyTorch, TensorFlow) • Matlab • Java • JavaScript | *Productivity tools* : LaTeX • Microsoft Office | *Software* : VS Code • Google Colab • Meshlab • Blender • Git • Prolific • Matlab

Professional Skills

Autonomy • Adaptability • Initiative • Sense of responsibility • Public speaking • Active listening • Teamwork • Scientific rigor • Project planning and management • French (native) • English (B2)

Hobbies Cooking • Baking • Fitness • Board games • Escape rooms

Professional Experience

Temporary Lecturer and Research Assistant (ATER) — **Toulouse INP**, Toulouse | 2023 – 2025

Two one-year contracts, with a teaching load of 192 hours per year.

- Instructor for multidisciplinary lessons, responsible for designing lab assignments, projects, and exams
- Co-management of teaching units: Geometric Modeling and Introduction to *PointNet* Networks

PhD Student and Teaching Assistant — **ENSEEIHT**, Toulouse | 2020 – 2023

Three-year government-funded doctoral contract, with a teaching load of 64 hours per year.

- Literature review and synthesis, writing and presenting scientific papers
- Design, implementation, and evaluation of state-of-the-art and novel approaches for:
  - ❖ Evaluating the relevance (rather than aesthetics) of 2D views of 3D objects
  - ❖ Assessing image quality of 3D objects using repeatable saliency detection
  - ❖ Estimating the best view of a 3D object by extracting geometric features from non-textured meshes
- Gender equality mission, PhD student representative on the laboratory council

Research Internship (Master 2 - Final Year Project) — **CNES**, Toulouse | 2020

Internship in the *Image Quality* team, focused on 3D surface reconstruction for the CO3D mission.

Research Internship (Master 1) — **INSIGHT**, University College Dublin, Ireland | 2019

Study of unsupervised learning methods for the visualization of high-dimensional data.

Education

PhD in Computer Science — **IRIT & Toulouse INP**, Toulouse | 2020 – 2024

Topic : Analysis of 2D and 3D Visual Content: Evaluating the Relevance of a Viewpoint of a 3D Object | *Scientific Publications* : VISAPP 2024 • SCIA 2023 • RFIAP 2022 • ORASIS 2021

Engineering Degree — **ENSEEIHT**, Toulouse | 2017 – 2020

Track : Digital Sciences | *Specialization* : Image and Multimedia

Preparatory Classes - *Mathematics and Physics* — **Daudet**, Nîmes | 2015 – 2017