

**Mastère Spécialisé®**  
**ARTIFICIAL INTELLIGENCE & BUSINESS TRANSFORMATION**

**BLOC 3 : PRACTICAL SKILLS**  
**AIBT111\_Hands-on**

**Course Director/Responsable du Module :**

Lucas HERVIER

**ISAE-SUPAERO Contact/ Contact ISAE-SUPAERO :**

Carlos AGUILAR MELCHOR

**Objectives/Objectifs :**

During each week of the whole program participants will manipulate AI tools on practical common themes (well-identified use cases) taking benefit of their accumulated knowledge.

After completing this module, distributed in all weeks of the program, participants will:

- Know about essential tools and libraries that can be used by data scientists;
- Have a practical knowledge on how to use AI tools to solve problems, and how to find solutions;
- Have a basic practical knowledge on how codes can be executed;
- Have faced practical technical problems and solved them.

**Contents/Contenu :**

Practical sessions based on real use cases and real data:

- Class 1 & 2:  
Introduction  
Hands on common data scientists libraries (e.g. pandas, scikit-learn, ...)  
Data exploration, features engineering, first ML models, results analysis  
Use Case: House prices prediction
- Class 3:  
Introduction to unsupervised learning, common techniques and visualization  
Use Case: MNIST & Tiny ImageNet
- Class 4: Meta Heuristics
- Class 5 & 6:  
Introduction to ANN, Deep Learning and Pytorch.  
Computer Vision, advanced models  
Use Case: Eurosat, UseCase made in IRT
- Class 7:  
RL (In-depth), Framework: TeamCatcher
- Class 8:  
How to create a dataset? How to deploy it in industries?
- Class 9:  
Reliable, explainable, fair AI

**Prerequisites/Prérequis :**

Basic knowledge of programming, growing knowledge of Learning methods.

Having a GitHub account and send your GitHub id to:

lucas.hervier@irt-saintexupery.com

**Textbooks/Bibliographie :**

- None (practical skills associated to other courses)

**Organization/Volume Horaire :**

7 hours for 9 weeks

- 1 day per week (except the second week).

**Evaluation/Evaluation :**

- Each BE will lead to an evaluation. The final grade will be the mean of those intermediate evaluations.

**Hours Personal Work/Heures Travail Personnel :**

- 70 hours

**ECTS :**

- 5 ECTS