

Mastère Spécialisé®
ARTIFICIAL INTELLIGENCE & BUSINESS TRANSFORMATION

BLOC 3 : PRACTICAL SKILLS
AIBT111_Hands-on

<p><u>Course Director/Responsable du Module :</u></p> <p style="text-align: center;">Lucas HERVIER</p>	<p><u>ISAE-SUPAERO Contact/ Contact ISAE-SUPAERO :</u></p> <p style="text-align: center;">Nicolas DROUGARD</p>
<p><u>Objectives/Objectifs :</u></p> <p>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.</p> <p>After completing this module, distributed in all weeks of the program, participants will:</p> <ul style="list-style-type: none"> ▪ 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. 	<p><u>Contents/Contenu :</u></p> <p>Practical sessions based on real use cases and real data:</p> <ul style="list-style-type: none"> ▪ Class 0: Introduction, taxonomy, object-oriented programming ▪ Class 1: 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 2: AI approach that are not Machine Learning such as Genetic Algorithms ▪ Class 3 Commonly used ML models: SVM, Decision Tree, ...; Use Case: Breast Cancer detection ▪ Class 4 Introduction to unsupervised learning, common techniques and visualization Use Case: MNIST & Tiny ImageNet ▪ Class 5: How to create a dataset, a model? How to deploy it in industries? What is online learning? Use Case: Numerous ▪ Class 6 & 7 Introduction to ANN, Deep Learning and Pytorch. Computer Vision, advanced models Use Case: Eurosat, UseCase made in IRT ▪ Class 8: RL (In-depth), Framework: TeamCatcher ▪ Class 9: Reliable, explainable, fair AI

<p><u>Prerequisites/Prérequis :</u></p> <p>Good knowledge on the Python programming language. Knowing how to use Jupyter Notebook is a plus!</p> <p>Having a GitHub account and send your GitHub id to: lucas.hervier@irt-saintexupery.com</p>	<p><u>Textbooks/Bibliographie :</u></p> <ul style="list-style-type: none"> ▪ None (practical skills associated to other courses)
<p><u>Organization/Volume Horaire :</u></p> <p>7 hours for 9 weeks</p> <ul style="list-style-type: none"> ▪ 1 day per week (except the second week). 	<p><u>Evaluation/Evaluation :</u></p> <ul style="list-style-type: none"> ▪ Each BE will lead to an evaluation. The final grade will be the mean of those intermediate evaluations.
<p><u>Hours Personal Work/Heures Travail Personnel :</u></p> <ul style="list-style-type: none"> ▪ 70 hours minimal. Possibly more depending on how you want to dive into the specifics 	<p><u>ECTS :</u></p> <ul style="list-style-type: none"> ▪ 5 ECTS