5-DAY COURSE

Enabling Innovation with Data Science

Harness data and AI to improve decisions and processes within your organization

TARGET AUDIENCE

Experienced professionals and executives wishing to steer data science initiatives and generate business impact

The course will be given in English.

PREREQUISITES

- Prior experience working with data in a practical context, such as data reporting, visualization, and statistical analysis using structured data, is required.
- Participants are required to bring their own laptop for use during hands-on practical exercises.

ORGANIZATION

- Swiss Data Science Center (SDSC), an ETH domain initiative joining Ecole Polytechnique Fédérale de Lausanne (EPFL), Eidgenössische Technische Hochschule Zürich (ETH) and Paul Scherrer Institut (PSI)

SDSC

OVERVIEW

In today's world, data is everywhere, yet the ability to harness its potential for informed decision-making, and consequently, its significant impact on business, remains elusive to most organizations. But how should an organization start to become data-driven? What are the best practices for implementing data science models that benefit the entire organization? And how to negotiate executive buy-in for data science initiatives?

This 5-day course focuses on achieving impact and innovation with data science. It features theoretical lectures on selected applications of data science (e.g. natural language processing and computer vision) and practical lectures on leveraging data science within a business context (project management, impact evaluation, performance metrics, stakeholder management).

OBJECTIVES

- Understand the foundational principles and techniques of data science within the broader context of artificial intelligence (AI) and machine learning, including deep learning applications
- Be able to objectively assess complexity and scalability of AI use cases
- Acquire the tools to manage AI projects from scoping to Minimum Viable Product (MVP) solution deployment
- Explore real-world applications through hands-on machine learning assignments and discover concrete data science applications
- Connect and share with other industry professionals

5-day course :

- Fri. May 9, 2025, 9am to 5pm
- Fri. May 16, 2025, 9am to 5pm
- Fri. May 23, 2025, 9am to 5pm
- Fri. June 6, 2025, 9am to 5pm
- Fri. June 13, 2025, 9am to 5pm

EPFL, Lausanne, Switzerland

Certificate of attendance

CHF 4000.–
10% special discount for contributing members of EPFL Alumni, as well as EPFL VPI partners and SDSC partners

On-line registration
Registration deadline : March 9, 2025
Number of participants is limited

LEARN MORE

PROGRAM

DAY 1 : INTRODUCTION TO DATA SCIENCE AND DIGITAL TRANSFORMATION

- Data science history, terminology and basic concepts
- Digital transformation - becoming data-driven
- Hands-on session with no-code platform (KNIME) - supervised learning
- AI project management strategies and tools

DAY 2 : FUNDAMENTALS OF MACHINE LEARNING (PART 1)

- Strengths and limitations of different supervised learning algorithms (including deep learning) and performance metrics, with hands-on session (KNIME)
- Best practices for industrialisation of solutions and reusability of digital assets
- Presentation of 3 use cases delivered by SDSC

DAY 3 : FUNDAMENTALS OF MACHINE LEARNING (PART 2)

- Strengths and limitations of different algorithms for unsupervised learning and time series forecasting, with hands-on session (KNIME)
- Ethical and legal aspects of AI, with an overview of model explainability and bias mitigation technique
- Canvassing exercise - how to start a project on the right track

DAY 4 : NATURAL LANGUAGE PROCESSING (NLP)

- History of NLP, algorithms and applications, with hands-on sessions (KNIME and ChatGPT)
- AB testing for business impact assessment
- Presentation of 3 use cases delivered by SDSC

DAY 5 : COMPUTER VISION (CV) AND GENERATIVE AI

- Computer Vision (CV) algorithms and applications, with a hands-on beginner-friendly interactive programming session (in python)
- Generative AI in NLP, CV and other areas
- Presentation of 2 use cases delivered by SDSC
- Group discussion and feedback on canvassed projects by participants

PROGRAM DIRECTOR

Prof. Olivier Verscheure,
Executive Director, Swiss Data Science Center (SDSC)

INSTRUCTORS

- **Prof. Olivier Verscheure**, *Executive Director, SDSC*
- **Dr. Alessandro Nesti,** *Principal Data Scientist, SDSC*
- **Dr. Valerio Rossetti,** *Principal Data Scientist, SDSC*
- **Dr. Roberto Castello,** *Principal Data Scientist, SDSC*
- **Dr. Silvia Quarteroni,** *Head of Innovation Unit, SDSC*
- **Clément Lefebvre,** *Senior Data Scientist, SDSC*
- **Thibaut Loiseau,** *Machine Learning Engineer, SDSC*
- **Dr. Matthias Galipaud,** *Senior Data Scientist, SDSC*

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