Use of AI in Research

Dott. Fabrizio Capocasale
Entrepreneur / Adjunct Professor

Course Aims

This course aims to equip PhD students with an understanding of the applications of Artificial Intelligence (AI) across academic, business, and agricultural contexts. The program will explore innovations, from rule-based systems to generative models, integrating tools and methodologies to optimize productivity and accuracy. Key objectives include:

- Understanding AI concepts and their applications in research.
- Utilizing tools for citation management and data analysis.
- Customizing advanced AI models such as ChatGPT, NotebookLm, and Perplexity for specific research needs.
- Implementing digital twin concepts for simulations.
- Evaluating the ethical, social, and security implications of AI.

Methodology

The course combines theoretical foundations with practical applications to promote interactive and comprehensive learning:

- **Lectures**: Introduction to foundational AI concepts and innovations.
- **Practical Workshops**: Hands-on experience with AI tools and platforms.
- **Case Studies**: Real-world applications of AI across disciplines.
- **Interactive Discussions**: Exploration of ethical, regulatory, and security aspects.
- **Collaborative Projects**: Development of CustomGpt and digital twins.
- **Guest Lectures**: Insights from industry professionals to bridge theory and practice.

Course description

This course explores the transformative role of Artificial Intelligence (AI) in research, providing students with theoretical knowledge and practical skills to understand its potential. Participants will examine the evolution of AI technologies, from traditional rule-based systems to modern generative models, learning how these tools can enhance efficiency, precision, and innovation in various research fields. The program focuses on practical applications, offering students a foundation to use AI-driven solutions, such as digital twins and customized models. Ethical, social, and security aspects of AI will also be Introduced.

Recommended texts

TBD.