



UNIVERSITÀ DEGLI STUDI DI NAPOLI  
**FEDERICO II**



Artificial  
Intelligence  
and  
Intelligent  
Systems  
cni National Lab

**PICUS** lab

PATTERN ANALYSIS AND INTELLIGENT  
COMPUTATION FOR MULTIMEDIA SYSTEMS

# AI-Powered Learning: Personalizing Education for each Student

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Ital-IA 2023: 3rd National Conference on Artificial Intelligence May 29-31, 2023, Pisa, Italy  
Workshop AI ed Educazione

# The Role of AI in Education

- AI is revolutionizing the field of education by leveraging its capabilities to enhance learning experiences and support both students and educators
- For example, it can strongly support personalized learning by adapting the learning materials and teaching methods based on students' needs and abilities, creating a personalized learning experience
  - In this context, a virtual tutor for self-placed courses could provide real-time support and answer students' questions, offering personalized and immediate assistance, as well as supporting the development of personalized lessons
- Also, ethical concerns surrounding tools like ChatGPT in education, including the potential for perpetuating biases and misinformation, must be taken into account, while also considering that they also offer opportunities for personalized learning experiences and enhanced accessibility
- In this context, the role of universities is crucial in driving innovation, research, and ethical practices in AI, ensuring the responsible integration of technology into education

# Massive Online Open Courses

- In recent years, Massive Open Online Courses (MOOCs) have spread exponentially, with their global market size expected to grow from USD 3.9 billion in 2018 to USD 20.8 billion by 2023. This success is mostly due to the wide range of benefits they offer, such as the prospect to rethink a course content based on analytics and the opportunity to provide different course experiences through A/B testing to know which educational experience is more effective

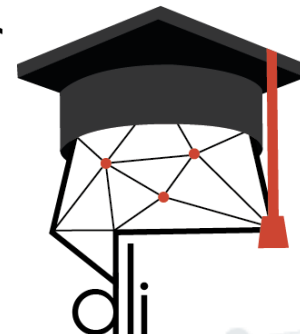
**coursera**



UDACITY

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Università di Napoli Federico II

Academy

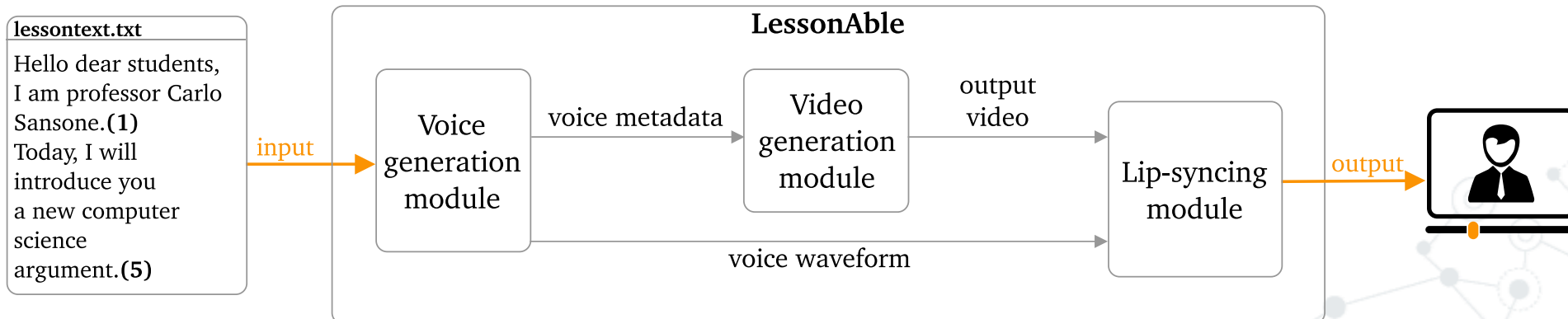


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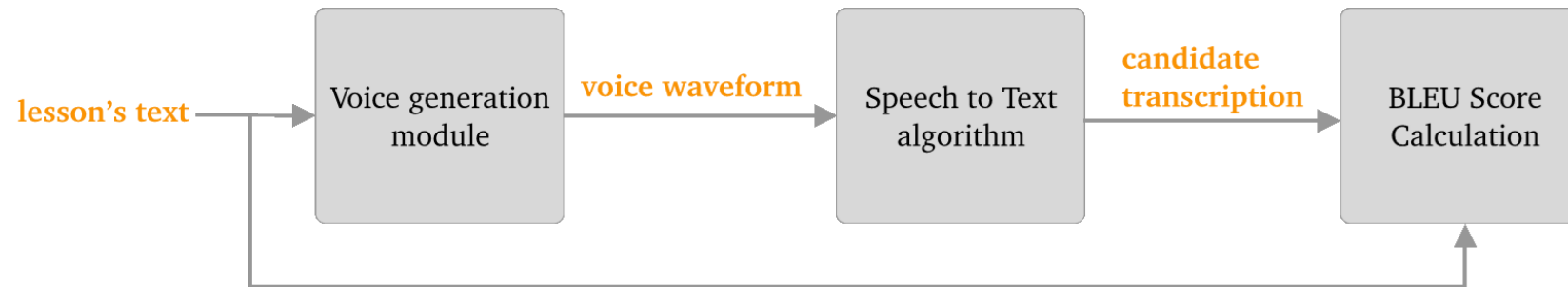
# Lessonable

✗ Creating the MOOC content (i.e., a video lesson) often implies following a script (a text) already defined, with the author required to interpret it following every line of the defined text instead of recording a lesson on a wimp (as during a classical frontal lecture) to generate high-quality metadata (e.g., dubs) to support impaired students. Thus, despite this need tends to be extremely time-consuming, it is often a mandatory fair requirement.

✓ To take the best from this need, in this work we introduce a pipelined methodology leveraging the concept of Deep Fakes, a recent AI-based approach to generate fake videos of a target subject, for generating MOOC visual contents directly from that lesson script. The idea is to realise a tool that supports the content generation by relieving the lecturer of the duty of both writing the lesson script and recording its lecture, automatically generating the latter from the former

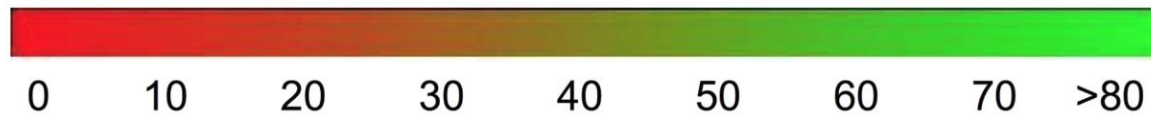


# Evaluating AI-generated Lessons



BLEU Score	Interpretation
< 10	Almost useless
10 - 19	Hard to get the gist
20 - 29	The gist is clear, but has significant grammatical errors
30 - 40	Understandable to good translations
40 - 50	High quality translations
50 - 60	Very high quality, adequate, and fluent translations
> 60	Quality often better than human

The following color gradient can be used as a general scale [interpretation of the BLEU score](#):





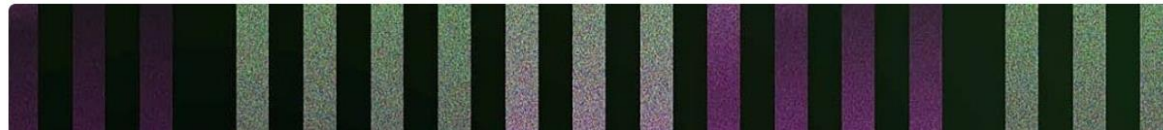
# How can ChatGPT help students?

- ChatGPT has quickly become popular among students as a valuable tool to improve their academic performance and save time in studying
- It may be used to generate topic ideas, outlines and even complete drafts of essays
- Questions have been raised about the possibility that its use may become uncontrolled!

SCUOLA

## **ChatGPT a lezione, come l'intelligenza artificiale può aiutare gli insegnanti in classe**

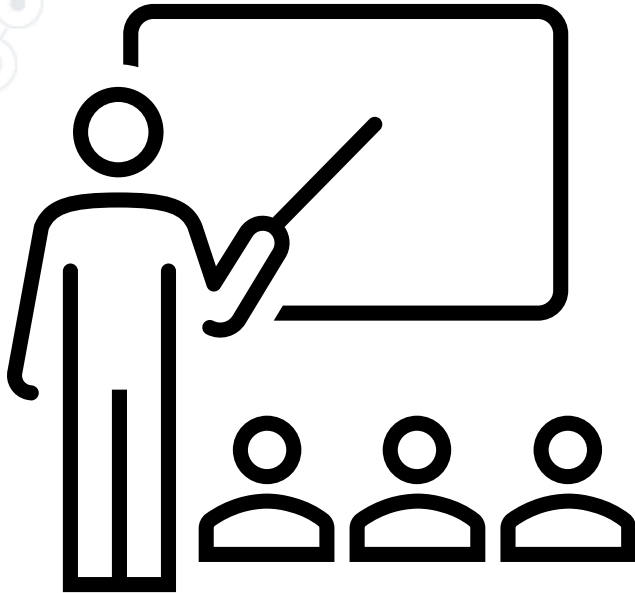
27 APRILE 2023 · 3 MINUTE READ



**→ it should not be forgotten that any technology in itself is never harmful.**

# How can ChatGPT help students?

- While misuse of this language model should certainly be discouraged, ChatGpt might help if it were included in a controlled way within educational institutions



- In Naples, ChatGPT is currently being used as a teaching support for faculty Members of Social Sciences at the Federico II University, with a special interest in the activities of:
  - ✓ Learning support, to help students understand concepts covered in lectures or clarify any doubts they may have about specific topics
  - ✓ Teacher training, to train teachers on best teaching practices, pedagogy, and how to develop effective teaching materials
  - ✓ Student feedback, to collect anonymous and rapid feedback from students.

# Student-Tool Interaction

- If these tools can be useful to students, they in turn can also help improve and analyze the performance of AI models
- Currently, the University of Naples is also considering including its students in a social experiment to assess ChatGPT's learning behavior/ability with respect to constant interaction with a specific group of users
- The general idea would be to proceed, after a constant period of interaction with the algorithm, to take in targeted information to evaluate its consequences

Concrete opportunity to analyze the possible ethical consequences that the use of these solutions entails.

- As the technology continues to develop, it is likely that we will see more universities adopting ChatGPT for a variety of applications. The role of academic institutions, in the development and dissemination of models, should not be underestimated



# Developing a Human Centered AI Masters (HCAIM)

- Why?
  - ✓ Are you happy to have an opaque AI algorithm make important decisions without knowing on what basis the decision is made?
  - ✓ Without knowing if the decision was fair?
  - ✓ Without knowing in whose interest the decision was made?
  - ✓ Without knowing if fair and representative data was used to make the decision?
- Aim
  - ✓ Creating AI systems that Amplify and Augment rather than displace human abilities
  - ✓ Preserve human control - Ensure AI meets human needs
  - ✓ Operate transparently - Deliver equitable outcomes - Respect privacy
- Support
  - ✓ The Human Centered AI Masters Programme is funded by an EU Programme designed to support the development of these skills



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**hcaim** human centred  
artificial intelligence  
masters

# The HCAIM Consortium

- The master has a selected consortium of Excellence Centres, Universities and SMEs
  - ✓ The consortium is constantly expanding, get in touch for info!!!

## Local Universities



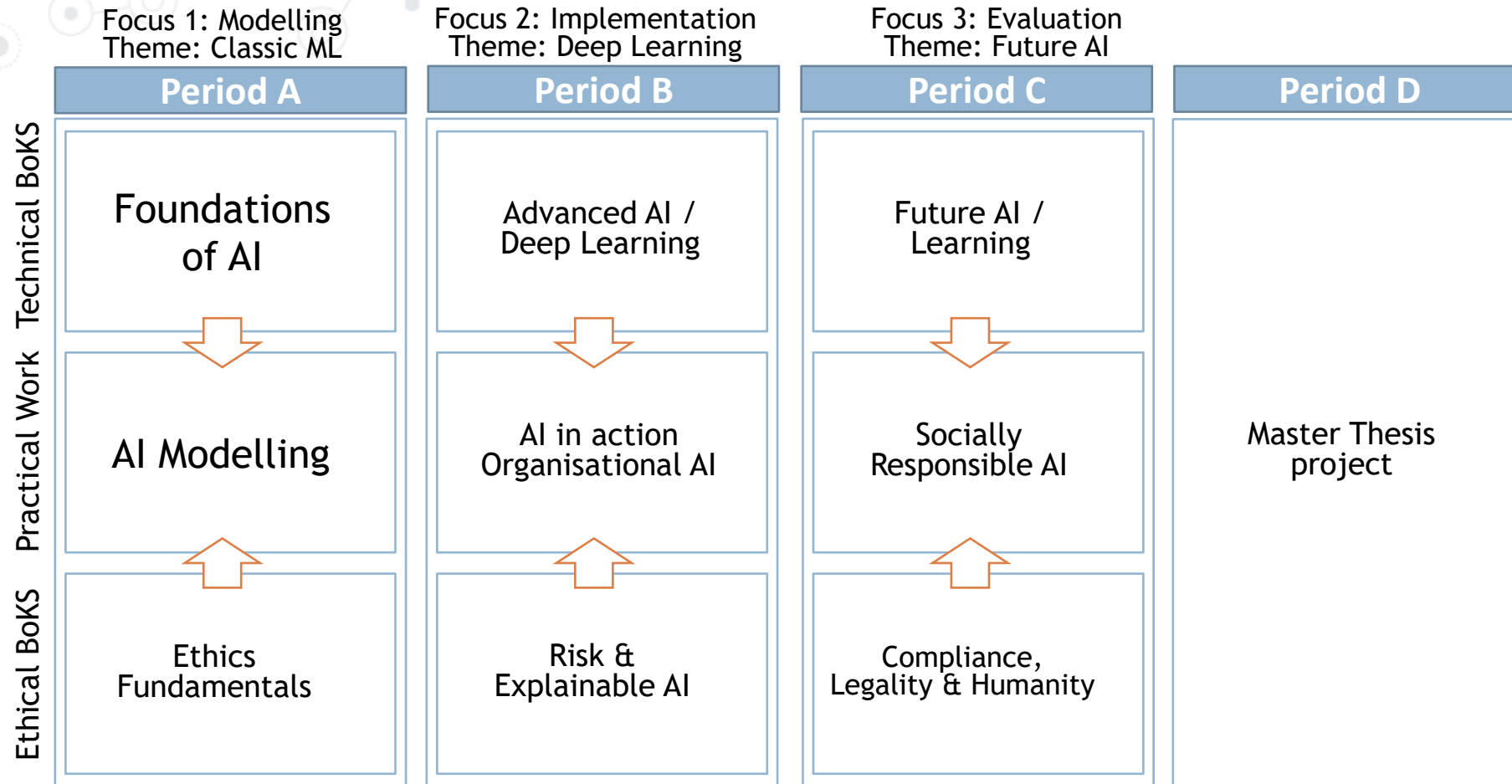
## SMEs and Excellence Centers



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# The HCAIM Matrix



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human centred  
artificial intelligence  
masters

# An European Master Program

- The master is also supported by the Erasmus program, thanks to which students across the different universities can meet and share ideas and experiences

## Utrecht – January 2023

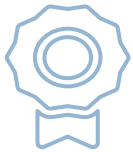


This was the first time international students physically met each other.

Aims:

- To meet each other, find similarity, differences, etc.
- To do a challenge all together
- Choose a thesis

## Dublin – December 2023



This will be the end-year presentation. Students will be sharing their work by using a poster summarizing the activities done, to be presented during the meeting and to be published on the HCAIM website



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A decorative network diagram in the top-left corner, consisting of various sized circles (nodes) connected by thin lines (edges). Some nodes are solid grey, while others are hollow white with a grey outline. The network is sparse and irregular.

*Questions?*

A decorative network diagram in the bottom-right corner, similar to the one in the top-left. It features a network of nodes and edges. One node in the lower right is highlighted with a solid dark blue circle, while the others are grey or white with grey outlines.