AI and Education: a Multi-Faceted Relation

Enrico Nardelli
Univ. Roma “Tor Vergata”
Director National Lab “Informatics & School” of CINI
President of Informatics Europe

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Cognitive Machines

- Industrial machines boost physical capabilities
- Cognitive capabilities
- Relate, concatenate, and process representations of facts to derive new representations
- Manipulating symbols whose meaning is unknown, by executing instructions whose meaning is unknown, produces symbols that have meaning for humans
Generative AI systems

- Produce data from other data with a level of competence similar to that of humans
- Intelligence is in the brain of the reader
- We project onto their outputs the meaning which is within us

- Not all technologies can be freely used by everyone
Their use in education

- Allowing our children to use generative AI systems in an unrestricted way before their full development means undermining their chances of growth on the cognitive level.
- Not prohibition, but awareness and education.
- Based on the principles of Digital Humanism:
  - e.g. selecting which facts to represent and how to code them is not without consequences.
  - e.g. deciding processing algorithms and weight of their parameters is not without consequences.
The bottom line

- Informatics Reference Framework for School

- Always keep human being in control
- Always keep human society in control

- Fatigue is a necessary and unavoidable component of training oneself to become competent in a certain field
- To ban tools that can relieve of intellectual fatigue does not make sense unless there is an educational motivation
Conclusion

- Creative production = generating + filtering
- Generative AI tools can help instructors in generating
  - plans for lessons and courses
  - exercises and exams
  - material for students’ practice
  - presentations for lecture and research papers
  - text → summaries
  - table of content → text

Knowledge and responsibility
Responsibility and knowledge
THANKS!

Enrico Nardelli

Univ. Roma “Tor Vergata”

http://www.mat.uniroma2.it/~nardelli/

@enriconardelli

http://www.linkedin.com/in/enriconardelli

https://www.facebook.com/enrico.nardelli