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Generative Artificial Intelligence and its Effects on Higher Education

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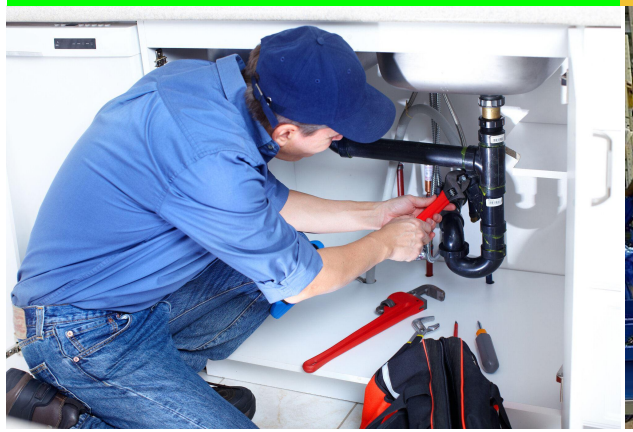
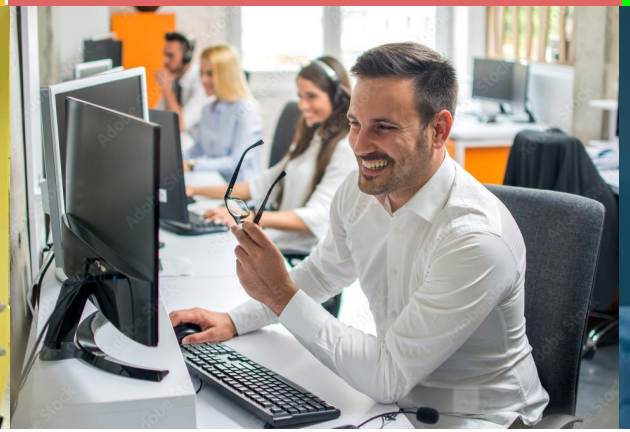
Generative AI - Long Term Effects on Job Markets

Low risk	Medium risk	High risk	Low risk
			

Job Complexity and Pay

Low-end jobs (plumber) that require hand skills and done in custom places (e.g., apartments) are at low risk.

Repetitive factory jobs in structured environments that require more skills are at medium risk (robotics with AI).

Office work requires human-computer and human-human interaction. OpenAI collects all possible use cases via ChatGPT. These jobs will go extinct.

High-end jobs (neurosurgeon) that require high cognitive abilities and for which data generation is hard are at low risk.

Universities are conservative and slowly changing organizations:
“Curriculum changes one funeral at a time.”
“Changing a university is like moving a graveyard.”

Founded in 1088, University of Bologna is the oldest university in continuous operation in the world.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If the task of lecturing will be done by AI-integrated methods, what will the professor do?

Professor will facilitate research-integrated project-based learning.

Research infrastructure is exorbitantly expensive.

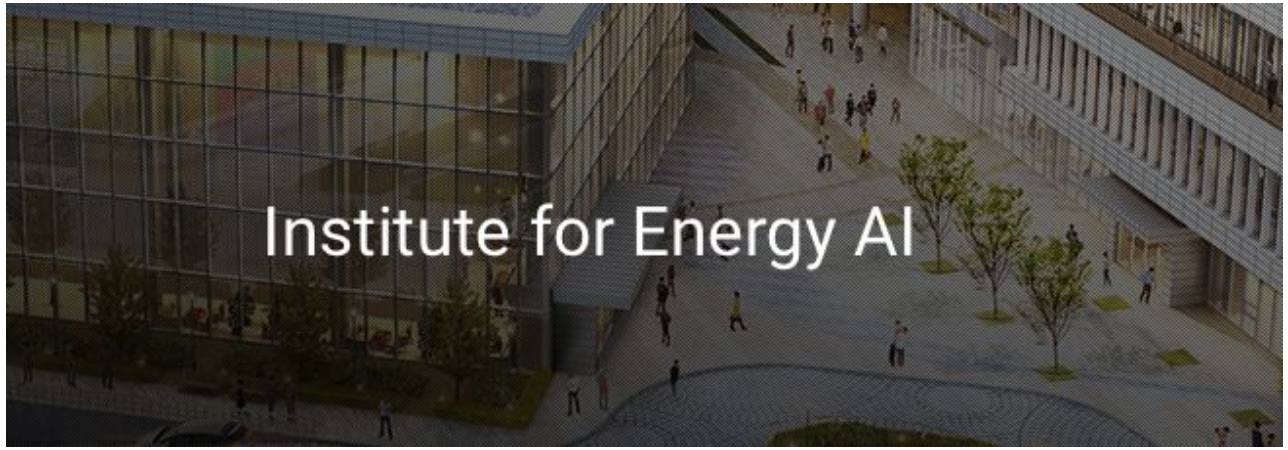
- For AI, you need a supercomputer.
- For material science, you need a transmission electron microscope and many other things.
- Concentration of critical research infrastructure is a must (core facilities).

Research-oriented faculty members in competitive fields (e.g., data science) demand high salaries, extensive benefits and research funds.

A professor can lecture 500 students at a time. On the other hand, a professor can do projects with 15/20 students at most. A lower student to faculty ratio would require significantly more funding.

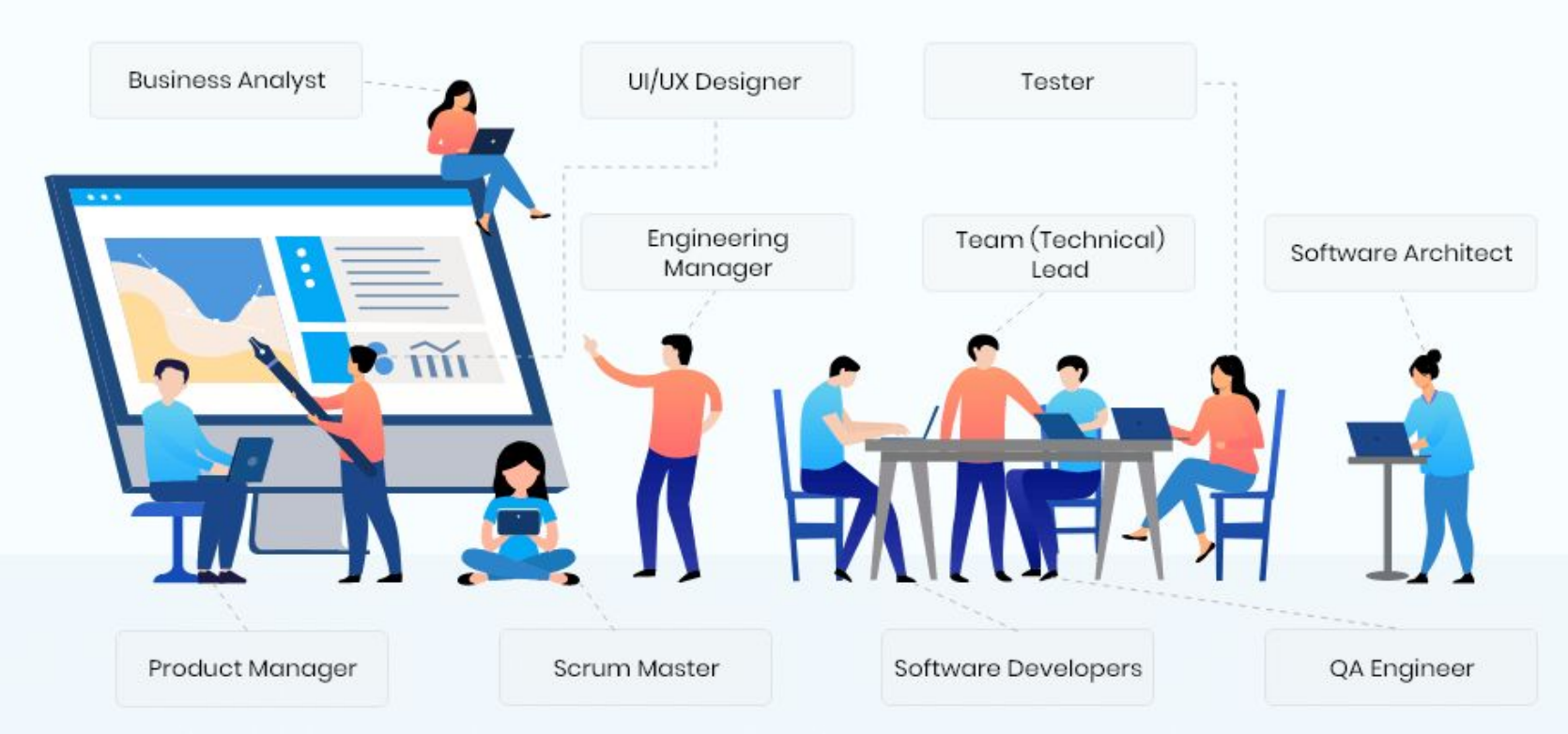
Smaller universities on niche topics will become popular.

KENTECH
Korea Institute of Energy Technology



Key Facts

Location	Naju, Jeollanam-do (Gwangju/Jeonnam joint innovation city), Korea
Size	400,000 square meters
Student (Full scale in 2025)	1,000 (undergraduate 400, graduate 600)
Professor (Full scale in 2025)	100
Staff (Full scale in 2025)	100
Foundation	May 21, 2021
Official First Semester	March 2, 2022



Many of the basic functions of the software engineering teams are being automated using generative AI tools such as CoPilot.

Eventually, a software architect will be able to develop a complex software obviating the need for junior developers.

How can we train software architects without them being first junior developers?

More team-based activities and projects for students with designated roles are needed to be integrated to the curriculum.

On the Use of Generative AI as a Tool for Education

Considering the productivity increases thanks to generative AI, university curriculum should embrace the usage of it and consider it as the fifth literacy alongside with **oral**, **written**, **visual** and **digital** literacy.

Students should be taught the ethics, limitations and tools for generative AI as part of course modules. For example, prompt engineering is emerging as a vital skill to extract valuable information from LLMs.

There might be some courses which restrict or ban generative AI usage to prevent overdependence to it.

For instance, a computer scientist must understand the basic concepts of algorithms and data structures and there is no way to understand them without writing code.

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