Artificial Intelligence

Changes in Employment

Jobs that will benefit the most from AI

- 65% of jobs.

- Among the occupations that will benefit the most from AI, the following stand out:
  - Architecture,
  - Engineering,
  - Life sciences,
  - Physical sciences,
  - Social sciences,
  - Business operations,
  - Financial operations.

Jobs that will be most affected by AI

- In the short term, AI could replace 7% of jobs.
- Among the occupations that will be most affected by AI, the following stand out:
  - Administrative functions,
  - Customer service functions,
  - Legal functions.
- In the long term, 100% of jobs? People like Elon Musk and Ilya Sutskever point in that direction.

Jobs least affected by the AI

- 30% of jobs.
- Among the occupations that will be least affected by AI, the following stand out:
  - Production,
  - Construction,
  - Extraction,
  - Installation,
  - Maintenance,
  - Repair,
  - Cleaning.

New professions created by AI

- AI Director.
- AI Engineer.
- Prompt Engineer.
- Machine Learning Engineer.
- Specialist in Natural Language Processing.
- Chatbot Developer.
- Computer Vision Specialist.
- Data Scientist.
- Robotics Specialist.
- AI Ethics Analyst.
- AI Security Specialist.
- AI Instructor or Trainer.
- AI Project Manager.
- AI Transformation Consultant.
- AI Regulation and Compliance Specialist.

Evolution of AI App Engineering

- Building AI applications in a company requires skills from Machine Learning Engineers, Software Engineers, and Product Managers. Until now, these skills were learned in separate programs for different professionals, but now integrated programs are emerging to train the new "AI Engineers."

- AI applications can be of various types (data, image, video, audio, etc), but the universalization of AI in the company comes mainly from LLM Applications, which will soon evolve to become multimodal applications.

How are new AI Engineers trained?

- Hybrids between Machine Learning Engineers, Software Engineers, and Product Managers.

- See Part 2 of the program.

Curriculum. Part 2: Development of LLM Apps (1)

- Use cases for LLM Applications.
- Basic concepts of LLMs.
- Basic concepts of LLM Applications.
- Architecture of an LLM application.
- Basic concepts of the RAG technique.
- Orchestration frameworks: LangChain, LlamaIndex, or OpenAI API?
- Basic LangChain.
- LangChain LCEL.
- LangSmith, LangServe, LangChain Templates, LangChain chatbot.
- Introduction to the programming exercise block.
- Basic programming and LLM Apps: python, fastapi, javascript, react/nextjs.
- Basic concepts of the development environment.

Curriculum. Part 2: Development of LLM Apps (2)

- Level 1 applications: "toy demos" with LangChain.
- Level 2 applications: "toy demos" with LangChain and Streamlit UI.
- LlamaIndex.
- OpenAI API.
- Introduction to full-stack applications.
- Level 3 applications: full-stack apps with Langchain/Llamaindex, FastAPI, and Nextjs.
- LLM Applications: advanced concepts.
- Latency: speed of LLM Applications.
- Cost control of LLM Applications.
- LLMOps: evaluation, observability, guardrails, monitoring, etc.
- How AI engineers stay informed.

For more detailed information about this topic

- See Chapter 3 of the book "Keys to AI". AI and Employment: Opportunities and Threats.
- Ebook included in the course. Physical book available on Amazon.