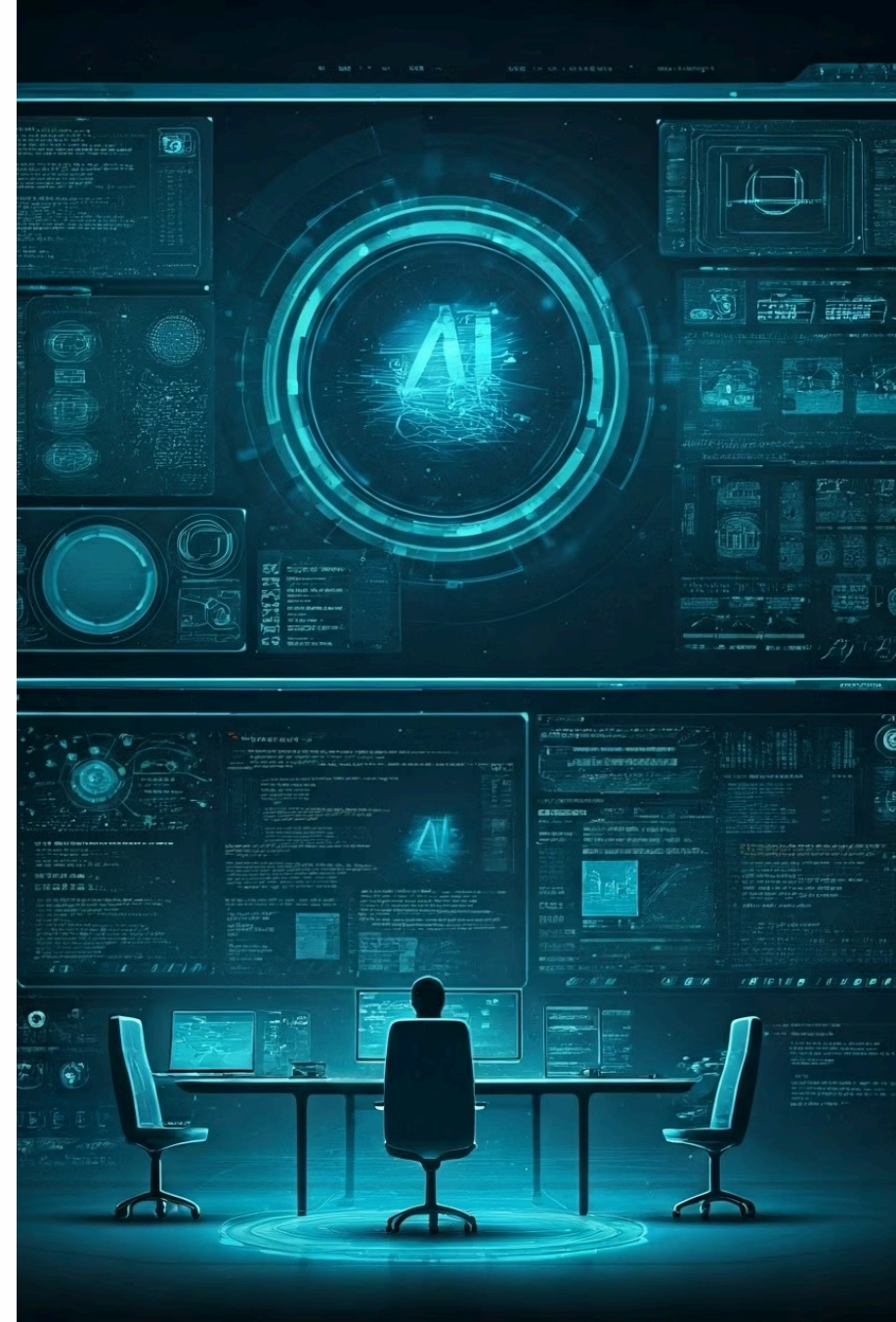


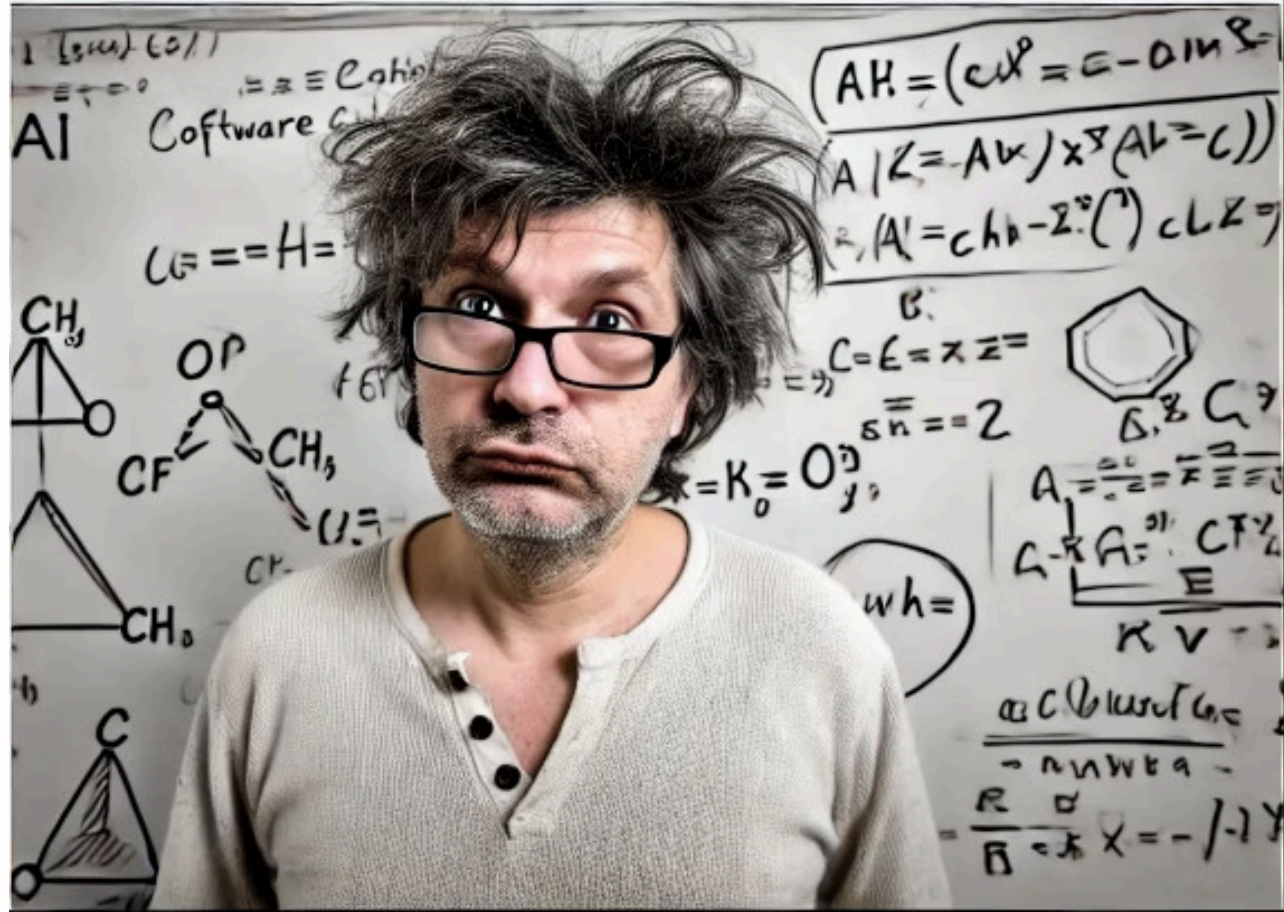
# Building Smart Web Apps with AI

UCA International Summer School

7-11 July 2025

Iván Ruiz / Andrés Muñoz





# Agenda

## **Day 1 (7 July 10:00-13:30)**

Introduction to AI (Andrés)

Language Models (Andrés)

## **Day 2 (8 July 9:30-13:30)**

Developing Web Applications with Plain Java (Iván)

Integrating LLM in applications (Iván)

## **Day 3 (9 July 9:30-13:30)**

Prompt Engineering (Andrés)

Retrieval Augmented Generation (Iván)

## **Day 4 (10 July 9:30-13:30)**

LLM agents (Andrés)

*Advanced RAG (Iván)\**

## **Day 5 (11 July 9:30-13:00)**

*LLM Ops (Iván)\**

Closing (Andrés)

# What will I learn?

- Understand the key concepts of Artificial Intelligence and how LLMs work.
- Develop interactive web interfaces in Java/Vaadin enhanced with AI.
- Integrate Langchain4j to connect your application to advanced language services.
- Apply prompt-engineering techniques and retrieval-augmented generation.
- Create intelligent “agents” that automate and enrich your workflows.
- Learn real-world challenges and best practices for taking AI into production.

# Prerequisites

## 1. **Basic Java programming knowledge:**

- a. Syntax: declarations, primitive types, operators, control structures (if, switch, loops)
- b. Object-oriented programming: classes, objects, inheritance, etc.
- c. Collections: List, Map, Set, etc.
- d. Lambdas

## 2. **Your own laptop**, with:

- a. A 64-bit Windows, macOS, or Linux PC/laptop with  $\geq 2$  GHz dual-core CPU (quad-core recommended), 8 GB RAM (16 GB recommended), and  $\geq 20$  GB free on SSD
- b. JDK 17 or later installed
- c. An active GitHub account

# Course Materials

[GitHub - andres-munoz/SummerSchool-SmartWeb](https://github.com/andres-munoz/SummerSchool-SmartWeb)

