# What is the project about?

My project is aimed to the development of a Chess game, featuring an automatic player based on Artificial Intelligence, apart from other game modes, like Human vs Human in the same computer, in a network or on the Internet. Additionally, if there are no delays, a responsive web app, Android and/or iOS versions will be implemented.

# Scope of the project (CS aspects)

Although the project is a Software Engineering project, I decided to include a variety of concepts to make an outstanding project, making use of many aspects of CS, which will be listed here:

* Java Programming (JEE): The main version of the program will be implemented in Java, using the Java Enterprise Edition version.
* User Interfaces: Based on the Swing Java Library.
* Design Patterns: Including Model-View-Controller, Command and Factory among others.
* Algorithms: Featuring Alpha-Beta Pruning and Min-Max algorithms to make it simpler for the AI engine to select a suitable move.
* Artificial Intelligence: Based on Neural Networks to select the optimal move for each situation.
* Networking: Firstly, the game should run on a LAN, afterwards, it should be able to be played online all over the Internet, requiring certain networking knowledge.
* Servers: The game will be installed on a Virtual Private Server in France, for players to be able to access it, download it and also hold a database.
* Databases: A database will be generated, saving the moves performed and the matches played. The database will be stored on the server.
* Linux: The Virtual Private Server I own is running Ubuntu Server 16.04.
* Distributed Computing: A more advanced version of the AI program could be hosted at the server instead of the player’s machine.
* Threading: The application makes use of threads.
* System Tests: Every function and feature must be tested for unlikely scenarios that could cause issues and bugs.
* Web Design and Scripting: A web interface for the game could be implemented after the rest of the features.
* Mobile Computing: Additionally, an Android and/or iOS app could be made, to explore Mobile Computing concepts.

# Motivation for the project

I wanted to make an outstanding project, including as many of the concepts that I learnt during these past 4 years as possible. Chess is a game I always enjoyed playing, especially when I was a child and always wondered how computers could be better than humans at such complex games where a brute force approach cannot be performed.