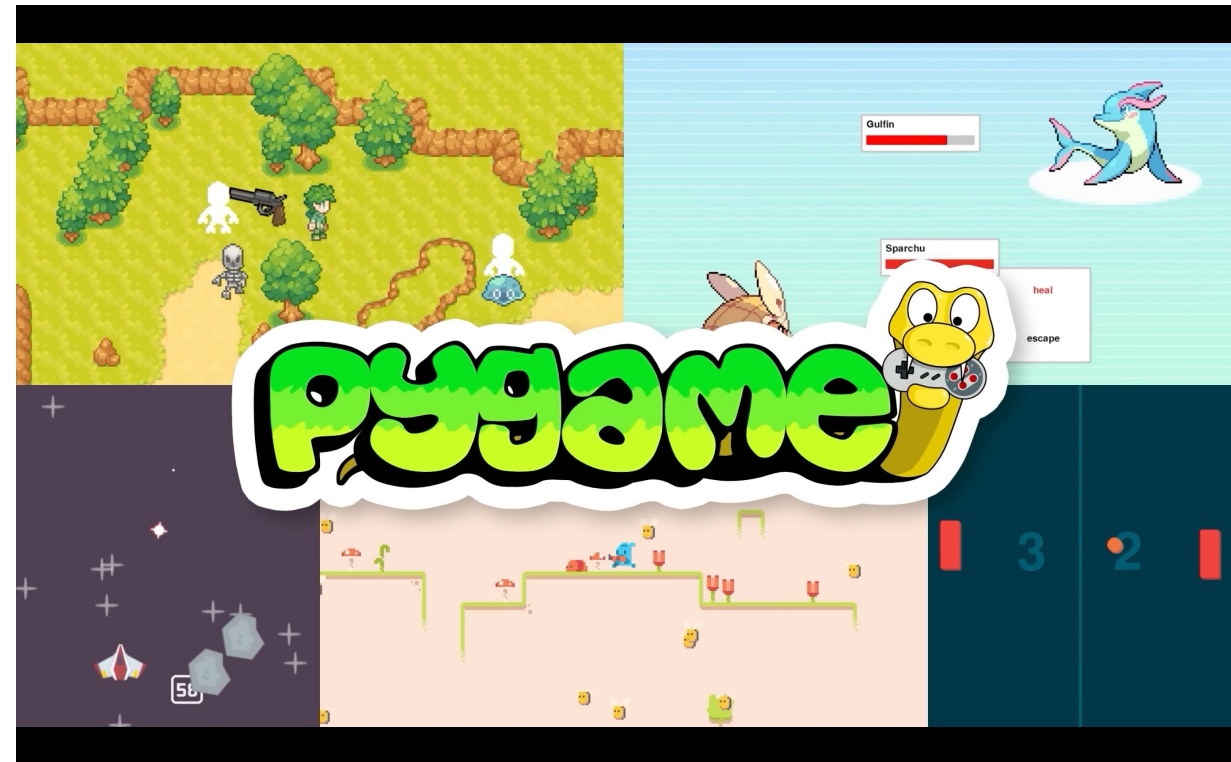


Minor Computer Science

- The overall goal is to learn the **basis of computer programming around Python.**
- Semester 1 - Basic Algorithms and Programming - Guillaume Blin
- Semester 2 - Data Management and Web Design - Luan Teylo
- Semester 3 - Modeling and Simulation in Python - Guillaume Blin
- Semester 4 - Introduction to Image Processing - Pascal Desbarats

Basic Algorithms and Programming

- What about being able to program a full game from scratch without programming background?
- You will program 5 full games in Python using an easy to use programming library called PyGame
- To get there, you will learn step by step and at your pace how to draw stuff on the screen, how to move stuff, how to interact with the user.
- Everything will be accessible online.



Data Management and Web Design

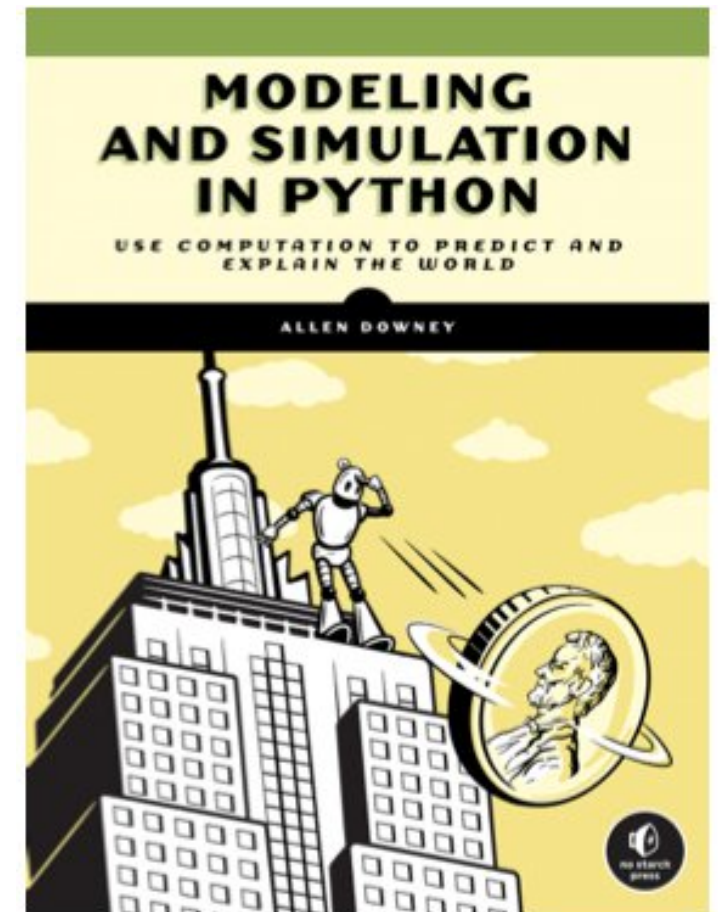
- Whether you have a large amount of biological data, a huge file displaying the historical data of patients in a hospital, or years of data from observing a dying star, you will need one thing: **a tool to process and handle all this data**. One very important step in all these data processing activities is **visualization**.
- This course focuses on data management, with a particular emphasis on data visualization using Python. Additionally, there is a web component, which is the **dashboards**. What is a dashboard? In summary, a dashboard is an interactive tool that we can use to visualize and interact with data.
- In this course, you will learn how to handle data using dataframes and create charts, interactive graphs, and dashboards using Python.

Modeling and Simulation in Python

- Are you a fan of Myth Buster ? Do you wonder how bike share system can work in a town with hills ? Are you fascinated by the famous Coffee Cooling Problem ?
- You will have a very instructive introduction to Modeling and Simulation in Python based on Allen B. Downey book
- For example, do you know that the Falling Penny Myth that consider that a penny drop from the Empire State Building would be going so fast that if it hit a person, it would break their skull is

****SPOILER** DO NOT READ WHAT IS COMING IF YOU DO NOT WANT TO KNOW YET**

false



Introduction to Image Processing

- Images are tables of pixels/numbers.
- Image processing is everywhere : robot vision, satellite images, medical or biological images.
- Goal : extract automatically most important information from images as shapes, region of interest....

