Getting started with Object Oriented Programming through Signal Processing

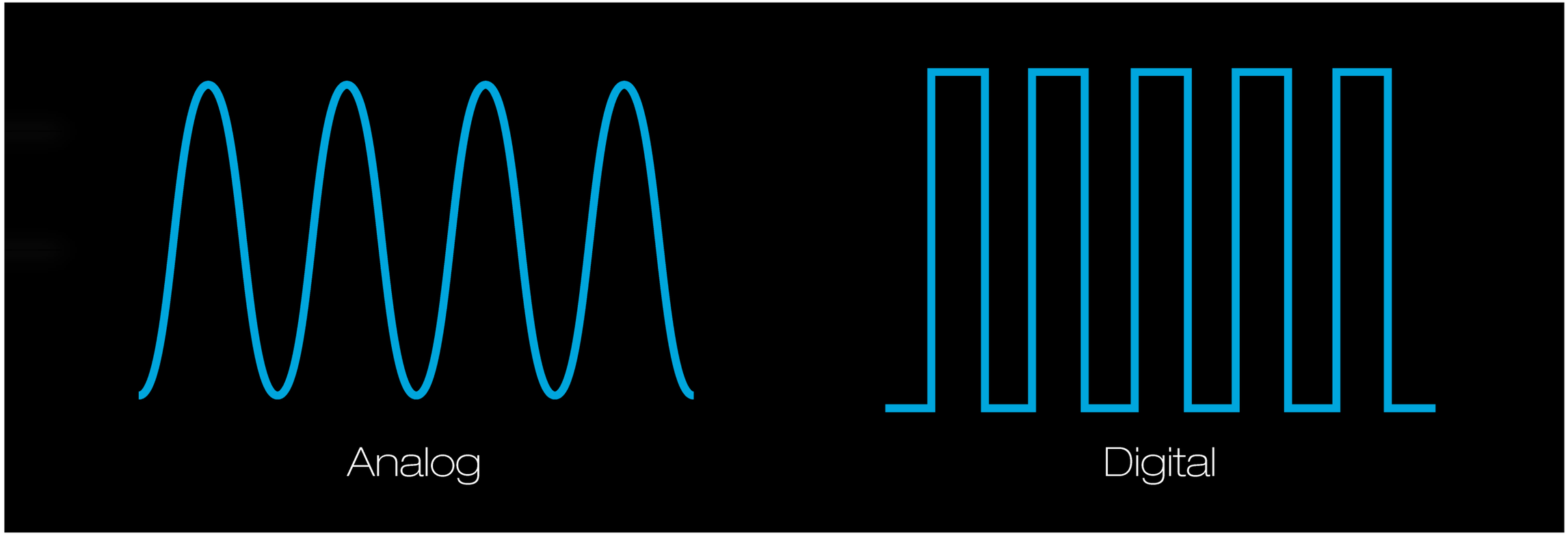
Francesco Bruni - PyconUS 22
@brunifrancesco - kususe.com

Who I am

- **MSC in Tlc Engineering**
- **Software engineer at Planetek Italia**
- **Playing with Python for 15 years**
- **No single-tech fanatic :)**

Coming from Bari, South Italy

Why OOP in the AI era?


Analog
Digital

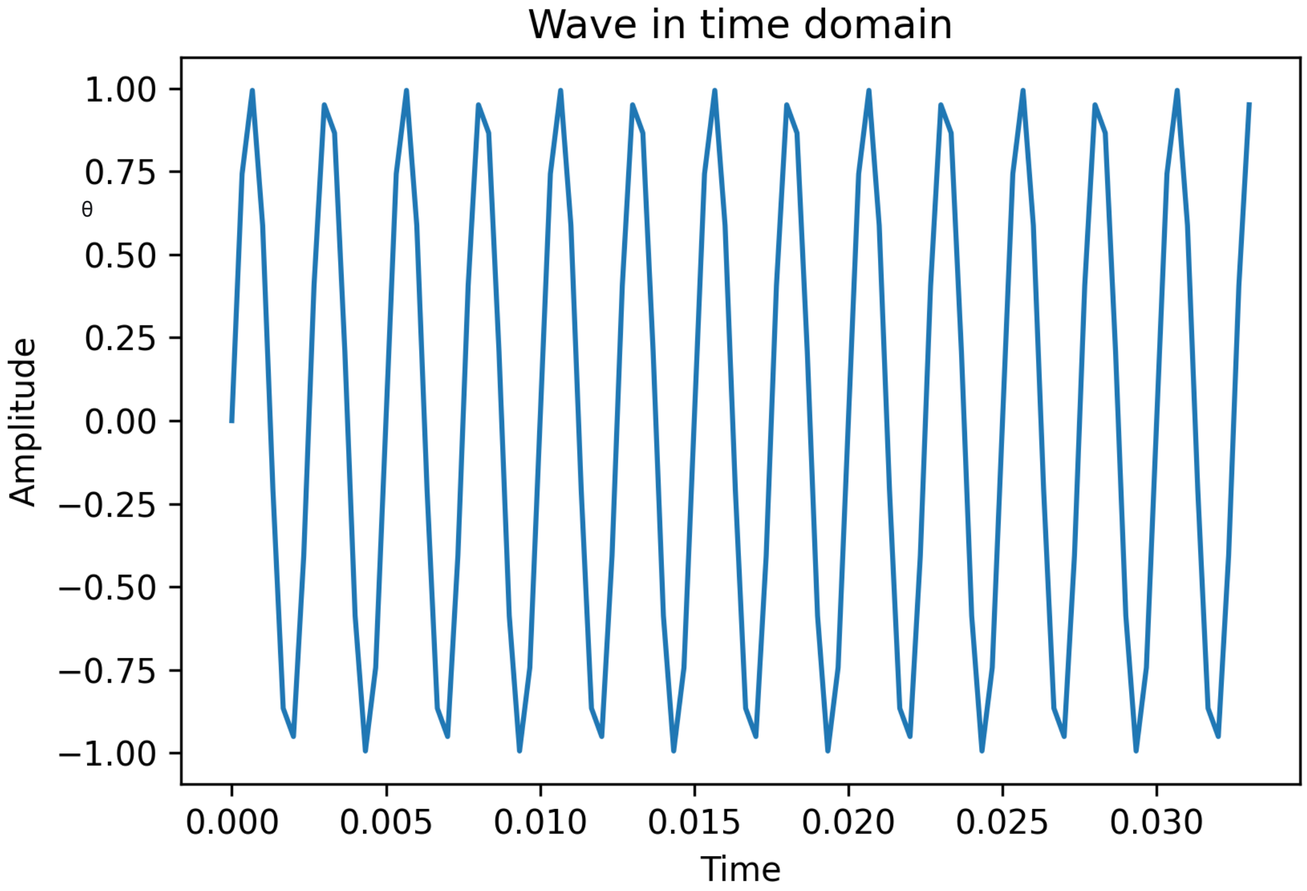
About this crash course

- No previous Signal Processing knowledge
- Live coding, 4 sections, exercise break at the end, solutions provided in *solutions.py*
- Python is required, but Jupyter notebook offers a more in-depth experience
- All the complexity has been wrapped in the *utils.py* library

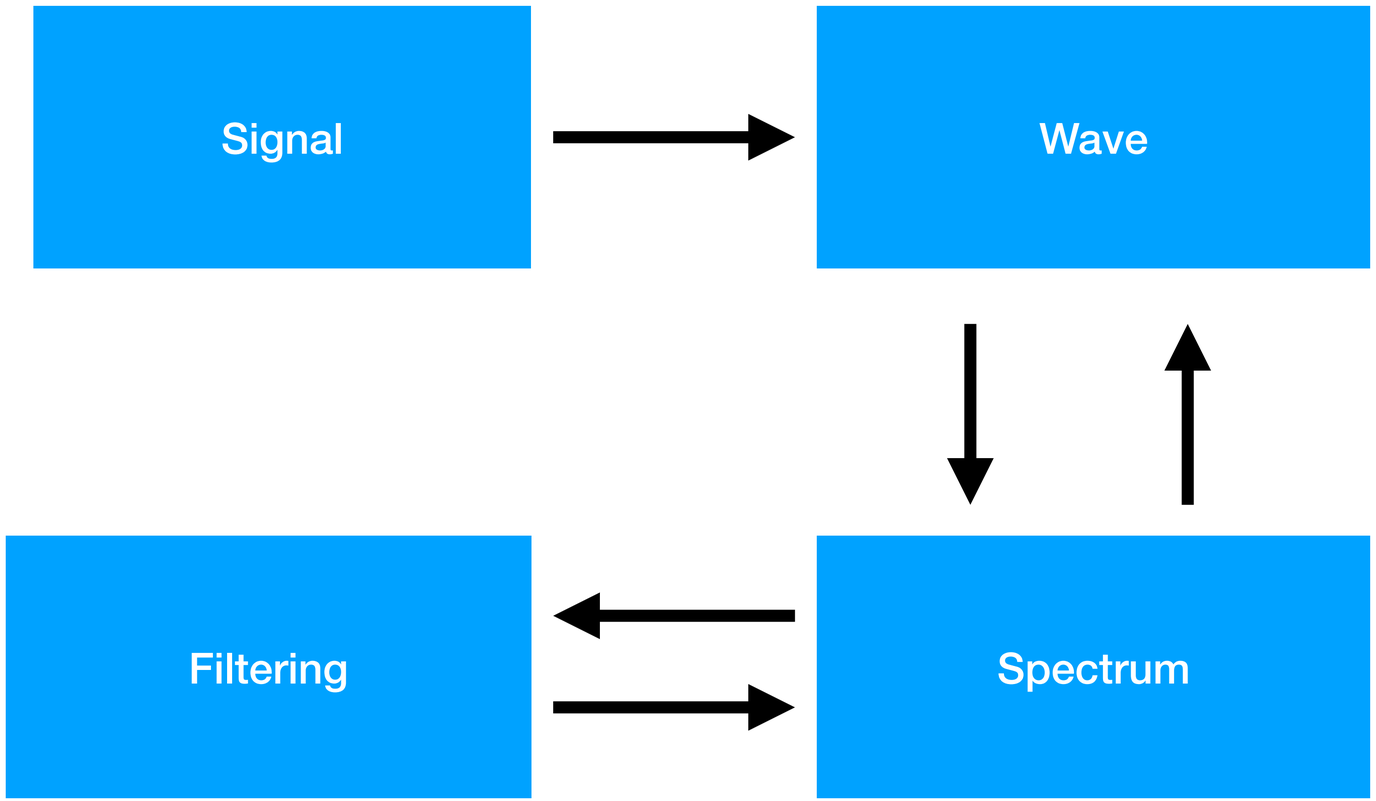
Signal vs Wave

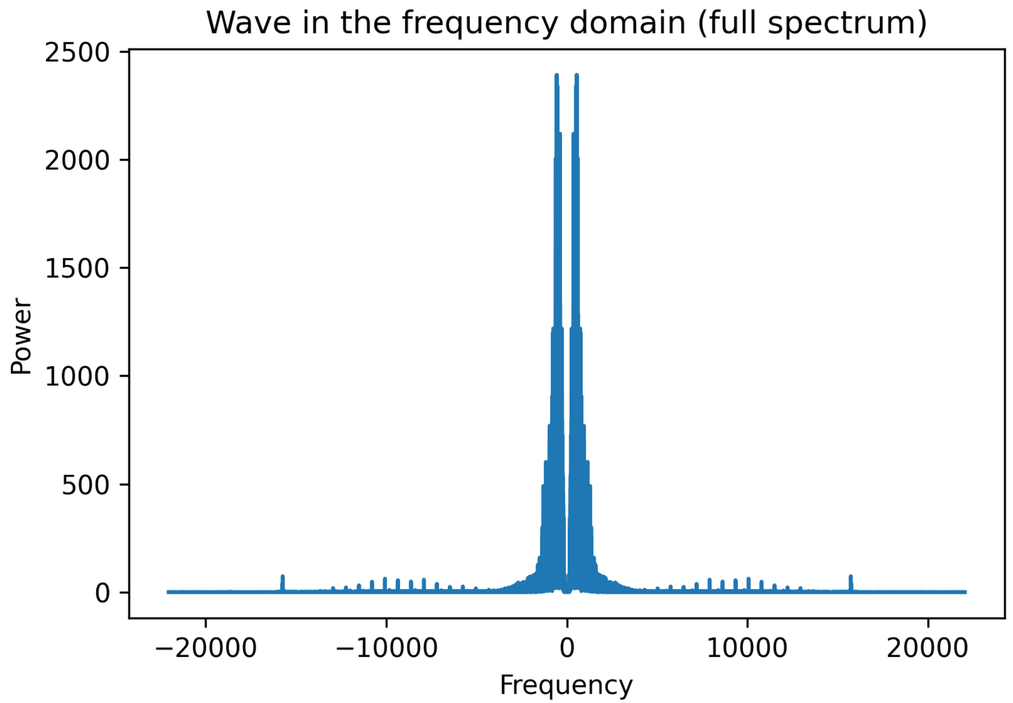
$$x(t) = A * \sin(2\pi ft + \theta)$$

A *is the amplitude*
sin *is the periodic function*
f *is the frequency*
θ *is the offset*



Signal vs Wave vs Spectrum





Get to code!