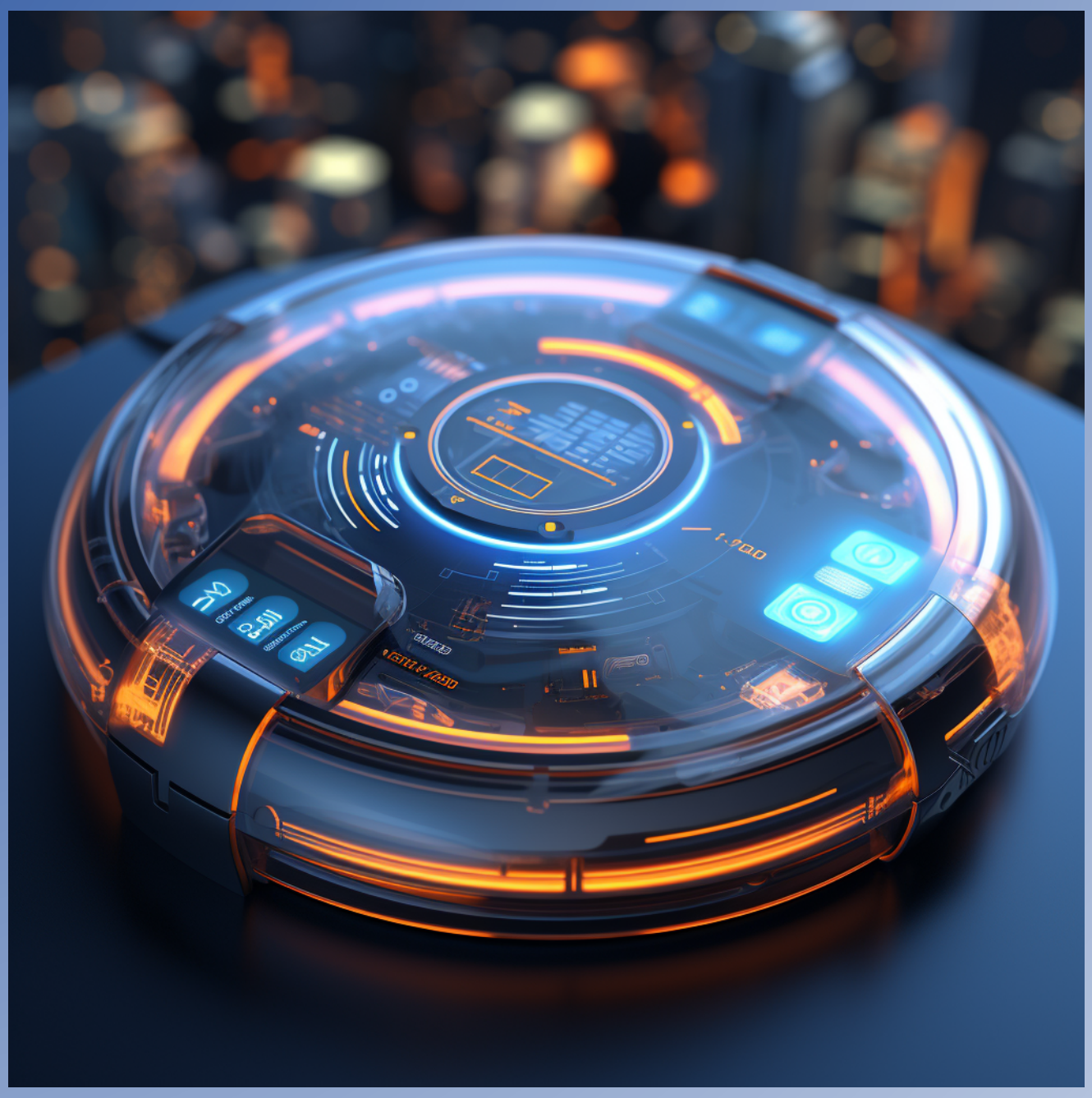
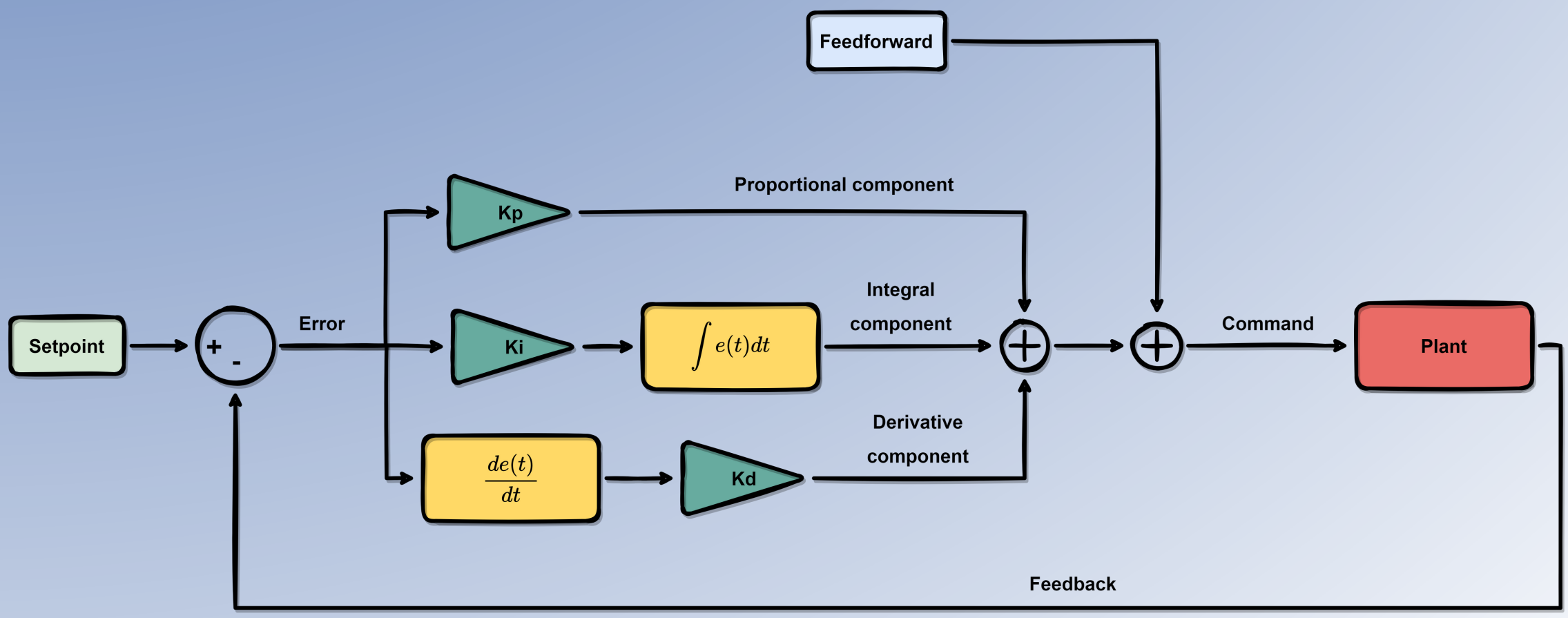
PID Controller





PID Controllers are based on a simple idea – the command used to control a system is the sum of:

Proportional component

The control error (difference between setpoint and measurement) multiplied by a constant – the **proportional gain – Kp**.

Integral component

The integral of the error multiplied by a constant – the **integral gain** – **Ki**. This ensures that the system will only stabilise when error = 0. This is because the integrator will output a constant value only if its input is 0.

Derivative component

The derivative of the error multiplied by a constant – the **derivative gain – Kd**. This gives the controller a predictive character, the command can anticipate what is going to happen by looking at the rate of change of the error.

Feedforward component

A term that is usually calculated using some knowledge of the system that helps us to "predict" what the command should be. Examples of properties used to calculate the feedforward:

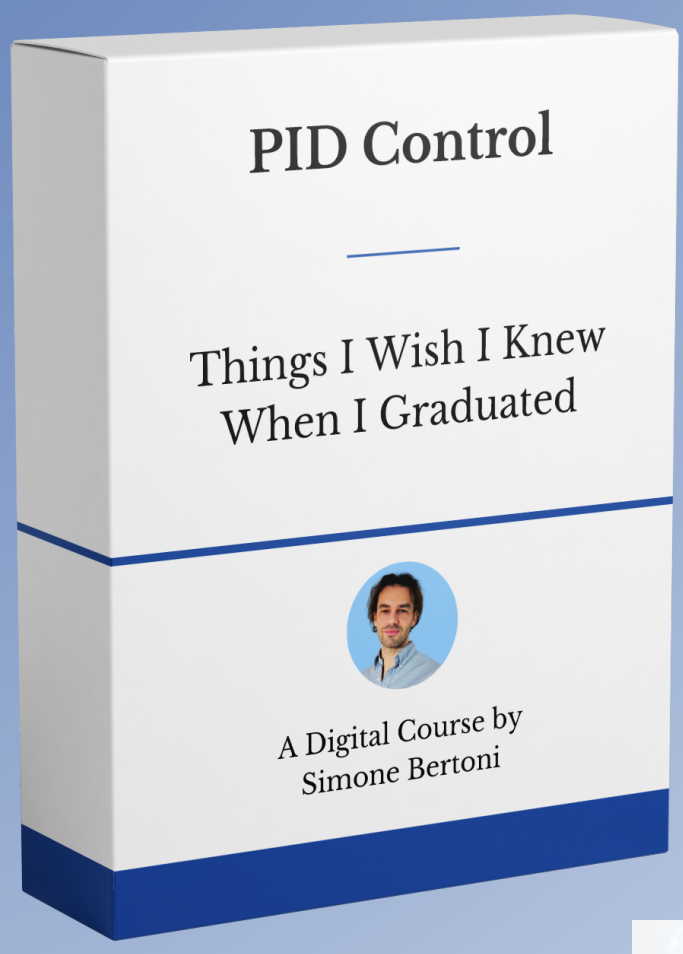
- The weight of a drone for altitude control
- The throttle percentage expected to be needed to maintain a certain speed for a cruise control

Interested in PID Controllers? Check out my video course:

https://simonebertoni.thinkific.com/

★★★★★
Very helpful and practical

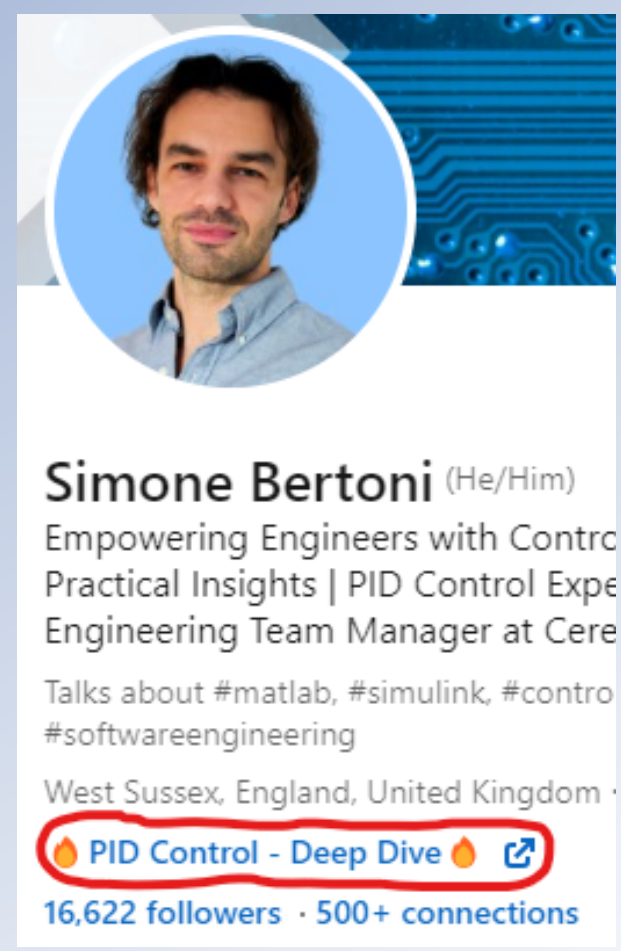
★★★★★
Very good sharing of experience



★★★★★
A different way to learn PID !

★★★★★
Great course

Find the link here!



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