

# Kosma Krzyżanowski

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Portfolio: https://kosmakosmako.github.io/

## EDUCATION

### Master of Science - Systems and Control

2024-present

Delft University of Technology

Courses: Control Theory, Machine Learning, Statistical Signal Processing, Optimization, ...

### Pre-Master - Moral and Political Philosophy

2025-present

Leiden University

### Bachelor of Science - Aerospace Engineering

2020-2023

Delft University of Technology

## PROFESSIONAL EXPERIENCE

### Delft Hyperloop

2023-2024

Chief Engineer

Team developing a Hyperloop prototype, showcasing a first fully scalable Hyperloop lane switch

- **Project management:** Planned and executed design, production and testing of an advanced Hyperloop prototype with a team of 25 engineers.
- **Systems engineering:** Ensured smooth integration of mechanical, levitation, powertrain, sense & control and powertrain subsystems.
- **Leadership:** Led a diverse team of engineers, fostering collaboration and effective communication across various disciplines.

### Delft Aerospace Rocket Engineering, Stratos V, NEAR

2021-2023

Propulsion and Active Apogee Control Engineer

Student team developing liquid bi-prop rocket to reach an apogee of 35km and demonstrate reusability

- **Propulsion and feed system design:** Designed a Quick Disconnect system - requirements, conceptual, detailed design, manufacturing and testing plan. Designed a cold flow test setup. Analysed hot fire test data.
- **Mechanical Design:** Optimized the functioning of the airbrake deployment mechanism by implementing a permutation based **Python** algorithm to decrease the acting friction forces, resulting in a **50% decrease** in the torque required, compared with the initial design.

### Refinitiv Metadata Analyst

2019 - 2020

Company a part of the London Stock Exchange Group delivering financial data.

- **Data Analysis:** Analysed vast amounts of data using **Excel**, worked on extensive databases with the use of **SQL**, Developed multiple classification systems for varying commodities data, conducted research in multiple fields and standards.
- **Cooperation:** Worked in team of experts in fields such as: IT, energy, gas, metals and agriculture. Learning and applying the best practices from their respective fields.

## PROJECTS

**Furata Pendulum Control (Modelling, Identification, Control):** As part of the DCSC Integration Project, modelled the dynamics, identified and designed LQR and MPC controllers for a Furata-style pendulum. (2025)

**Robotic Arm with Computer Vision (Python, Computer Vision, Control, Linux, Raspberry Pi):** Fully designed, manufactured and programmed a robotic arm to pick up objects and manipulate them based on the inputs from a camera using OpenCV and reverse kinematics for motion planning. (2023)

**Winner of Project X – NATO, Boeing, Unmanned Valley Design Sprint:** Designed an autonomous collaborative drone system for application in rapidly changing environments under the guidance of senior Boeing engineers, NATO officials and industry leading experts. Developed a **decentralized, token based decision making solution** allowing for unprecedented flexibility, scalability and robustness. (2022)

## SKILLS SUMMARY

**Management:** Project management, Stakeholder management, Leadership, Public Speaking

**Prog. Languages:** Intermediate: Python, MATLAB, C++

**CAD:** CATIA (intermediate), Siemens NX (intermediate), Fusion 360 (intermediate)

**Languages:** English (fluent), Dutch (beginner+), Polish (fluent)

**Interests:** Robotics, Political Science, Philosophy

**Hobbies:** Bouldering, Surfing, Windsurfing