

# Joel Garcia Martin

My Engineering and Design Portfolio



# My Work Experience

- Oct 2025 to Oct 2026
- Sept 2022 to Present
- July 2022 to Present

## Internship in Production Development @SEAT S.A.

Creating prototypes to improve the production and digitalization of the company.



## Mission Manager (CEO) @ UPC Space Program

Managing a team of 30+ engineers, social media specialists,.. to build a rover for a competition.



## Senior Mentor @ MIT Edgerton Center

Advising and teaching product design and engineering.  
Hosting online design reviews, advising on products and giving presentations.

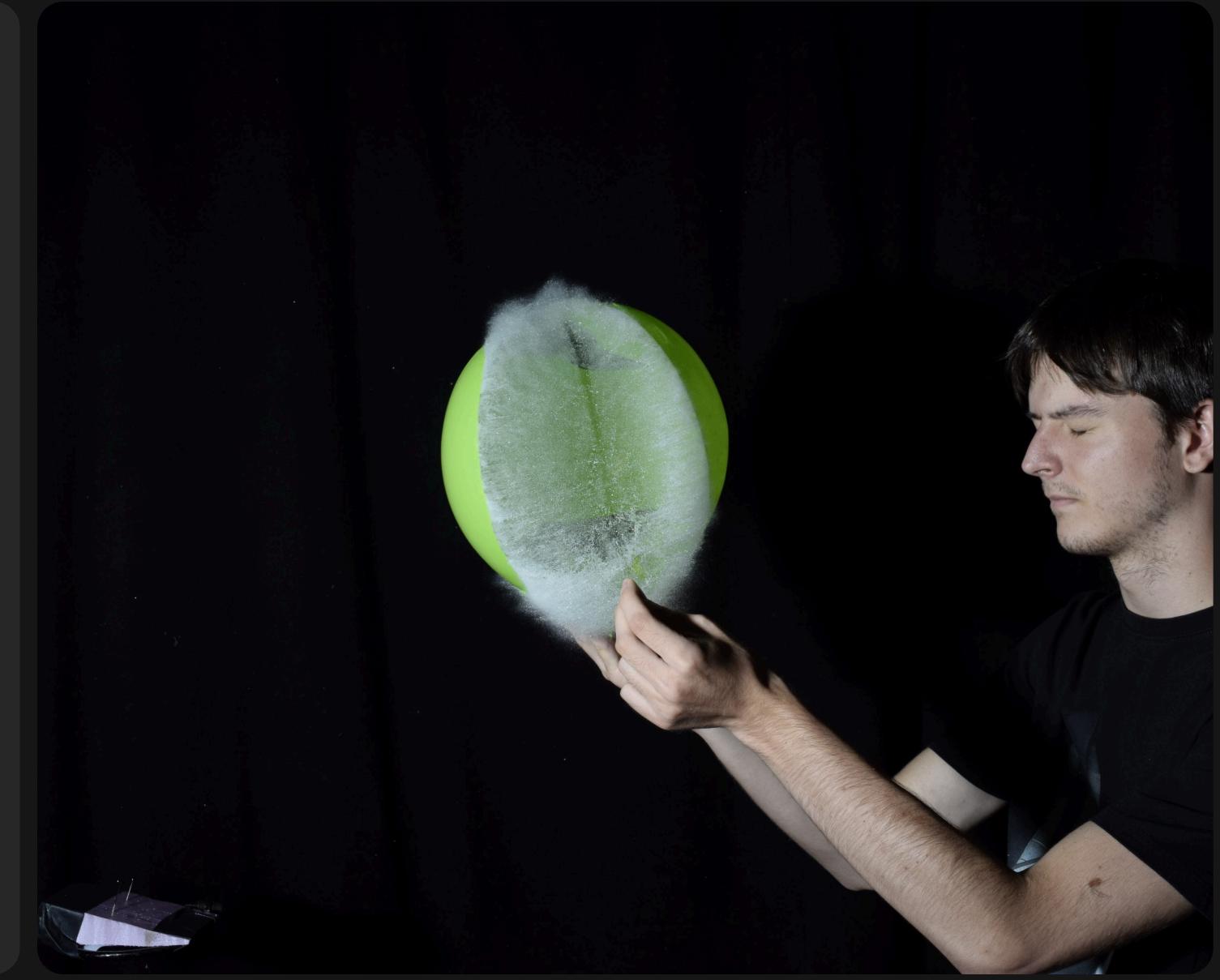


# What I do on my free time

- If there's something I am strong at, is not pure academics, but enrolling in projects and learning cool things on my own.

## Personal Projects

- I love learning how to do things better. I learnt how to use tools like Figma, Notion and blender on my own and start random projects.



## Random Things

- I am a curious person that randomly decides to do something. I started to play the violin in 2022 and take classes to this day. Plus, I am slowly learning Chinese.



# Some of my Projects

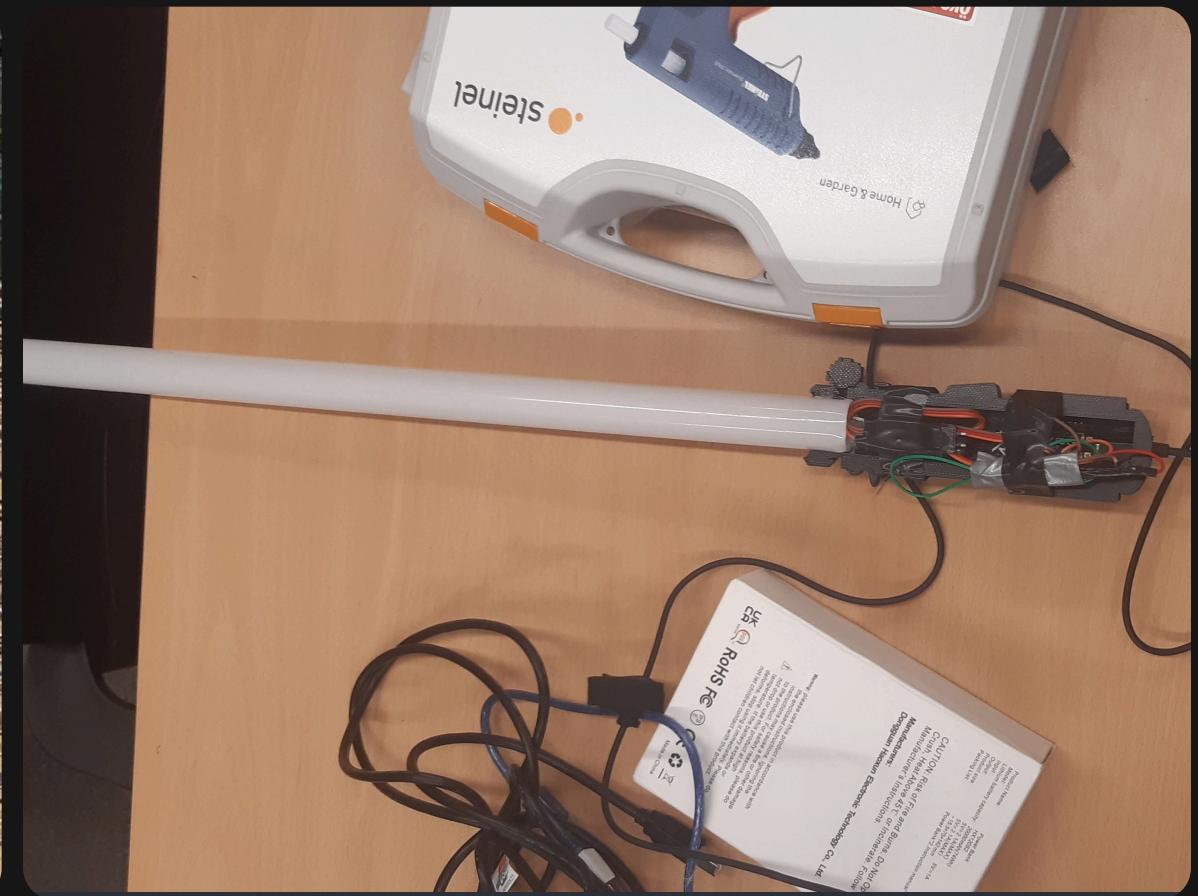
Examples of what I have done over the years



# Projects I have mentored

2022-2026

- Over the past 4 years, I have mentored several projects and have been very involved during their development. These are the ones I have been the most involved with (directly working on it or constantly advising the team).



## Furrari - A Car for a Cat

- A very simple concept that proved to be tricky to implement. The cat had full control over the car
- I personally worked on this project myself and was the main mentor

## Laser Harp

- The concept is simple but full of challenges. The outer ring has lasers and the inner ring has sensors. When someone breaks the beam, a sound is played

## ATV - All Terrain Vehicle

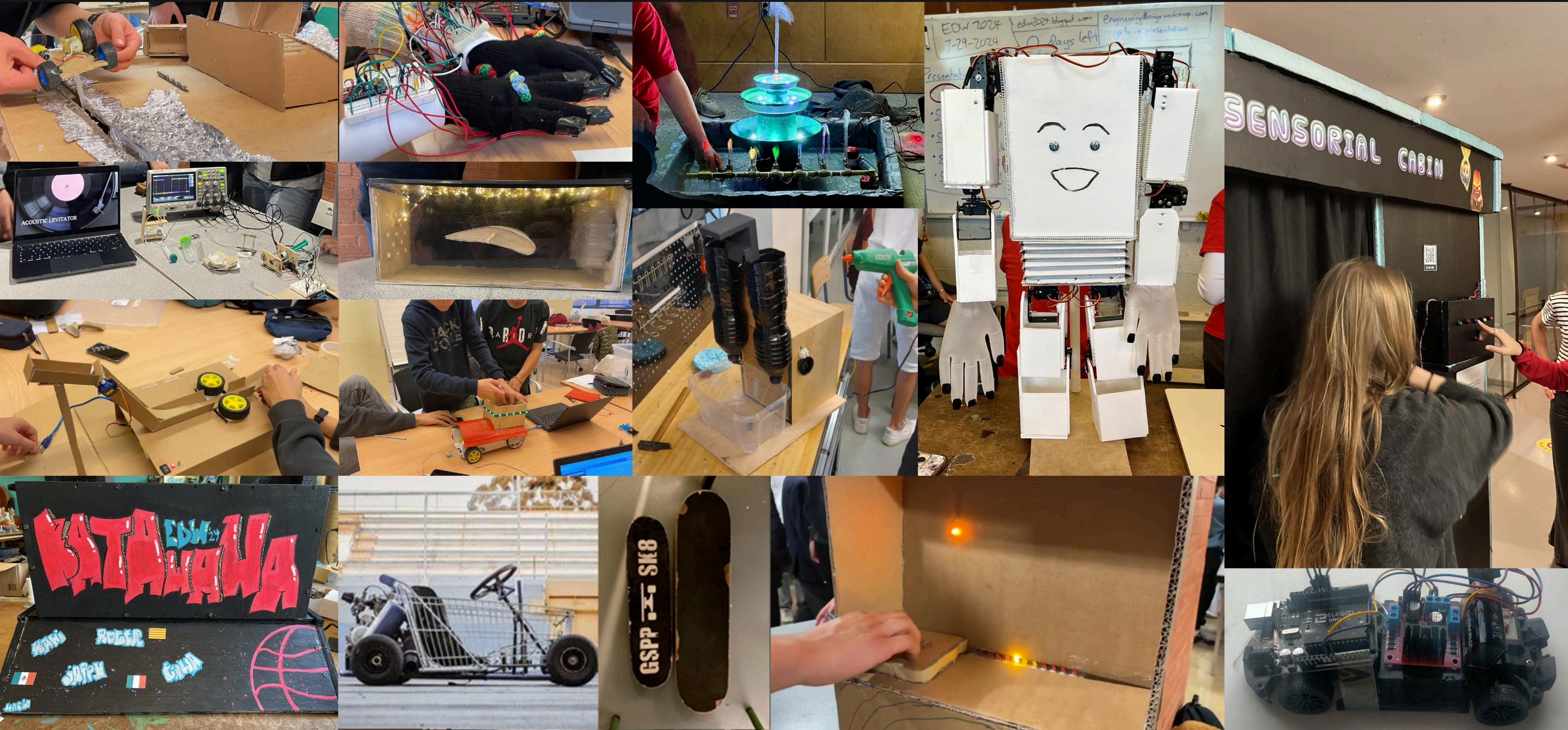
- During a Hackathon, I helped a group build a car that could go both over water and solid ground.

## Light Saber

- The first group I ever mentored! The concept is quite self-explanatory, a sword like the ones in Star Wars.

# Projects I have mentored

2022-2026



I have mentored many groups, some I have only seen once, others I saw weekly for a year. Here is a showcase of some of these. In total I have seen +150 groups.

# GRASS Website Design

2022-2024

- During 2022 through 2024, I learnt from scratch how to design a website to control and operate the rover. This design was very simple at first, but as I learnt how to use Figma, Docker, Tailwind CSS, etc., I became better at this.
- I designed this website from scratch (there was no website before I arrived at the project).
- This design evolved as more features were added over time, but this served as my first digital design.
- Below, you can see two routes, but this website has over 15. The design was initially constructed in Figma and then built using Flask, PostgresSQL, Tailwind CSS,... It is fully functional and implemented in the rover!

**Welcome to the GRASS Control Panel**

**Current Time**  
**16:00:00**

**Time To Next Event**  
**16:45:00**

**Presets**

**Sensor Data**

**Rover Status**

Current Task Presets: **None**  
Rover System Check: **No issues**  
Emergency Button: **OK**  
Rover Mode: **CHILL**

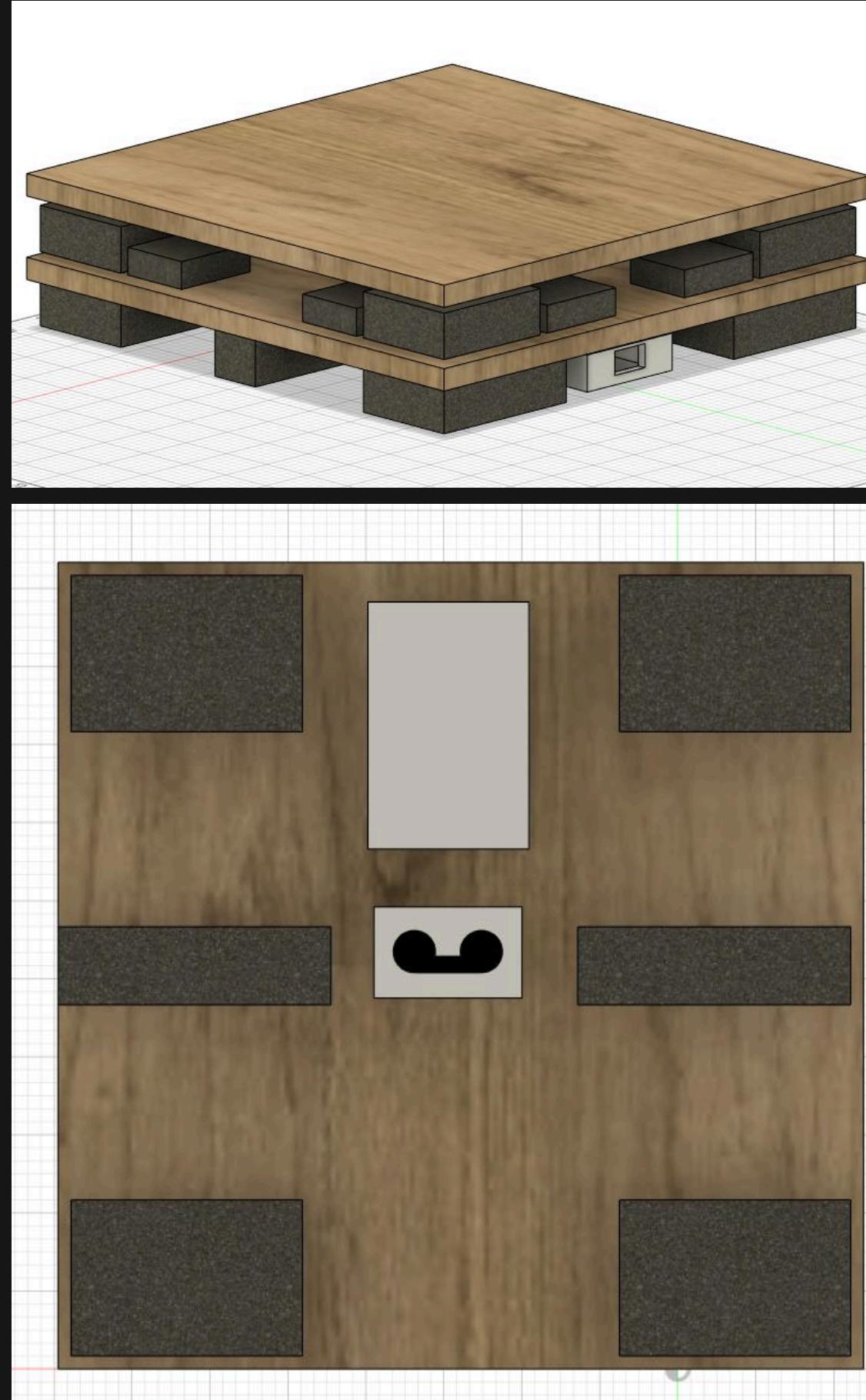
**0825 - Second Waypoint**  
**0830 - Third Waypoint**  
0845 - End of Time for Navigation Task

**WHEELS**

**PLOT**

**PLOT**

# Summer 2022



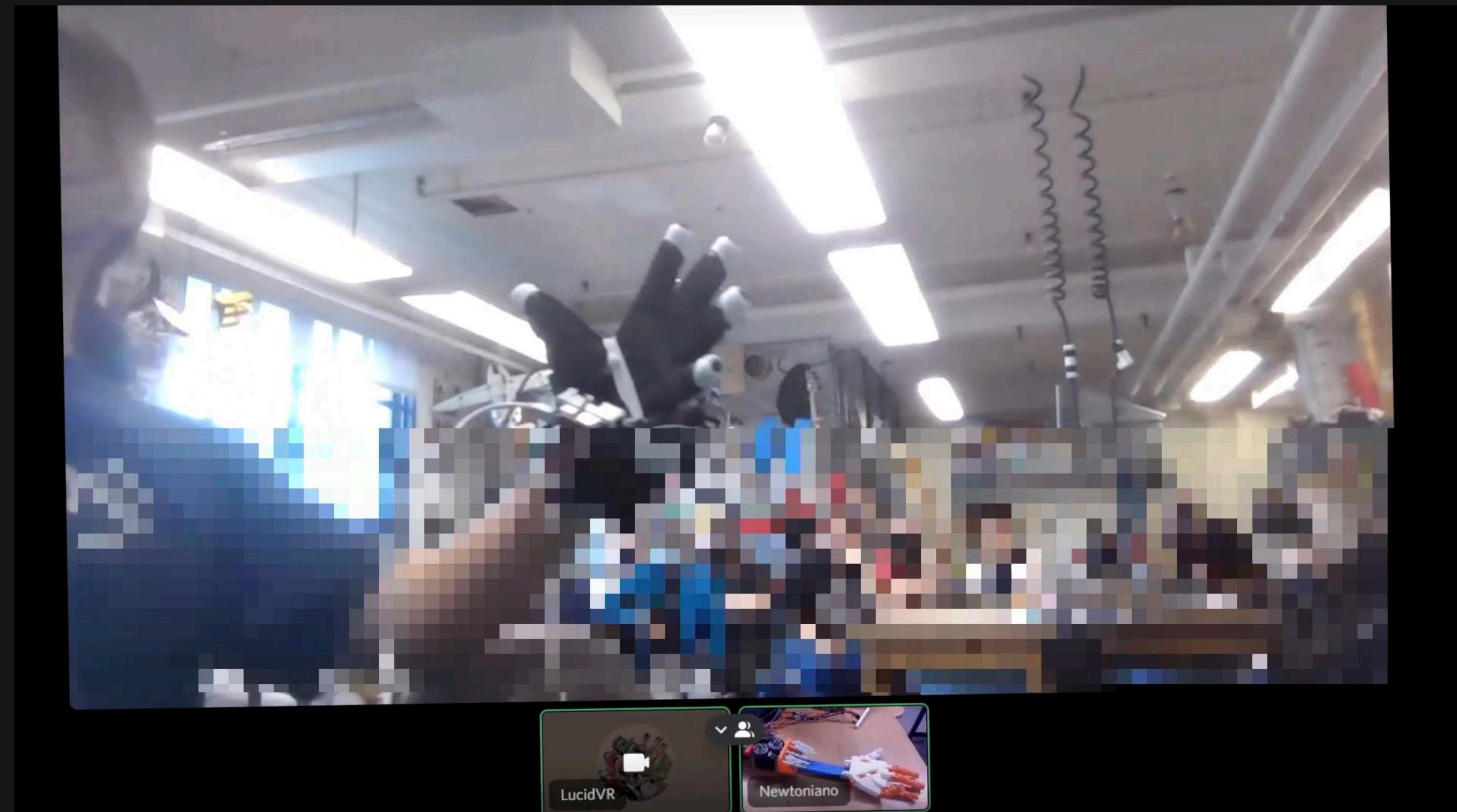
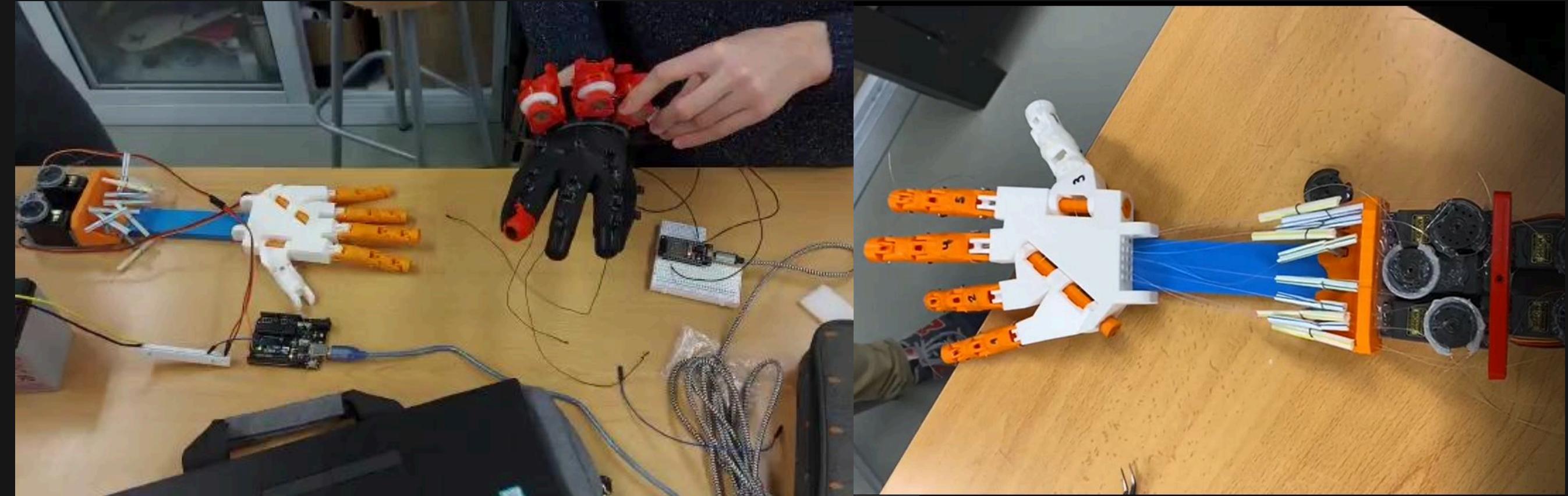
## Foot Piano (The Blue Man Group)

- This is a foot piano we designed and built during the Engineering Design Workshop 2022 (I was 17 back then).
- We prototyped the button to not lose strength over time!
- Final Presentation: [Link](#)

2021-2022

# Shaking Hands Overseas

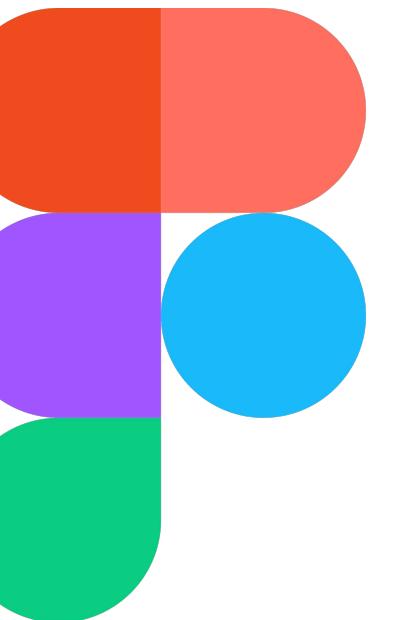
- My first long term project ever. In this project, we built and created a system for a hand to be moved remotely using a glove built by LucasVR ([Link](#)).
- In collaboration with Lucas, we were able to make the hand move exactly how the glove sensed.
- I did this project during High School (was 16-17 y.o.)



# The Organization of My Life



**Notion**



## Notion

- I use notion for tracking habits, tasks, some journaling and keeping my life organized.

## Notion Calendar

- Notion Calendar is my calendar of choice. It works great by allowing for visualization of regular Notion Tasks

## Figma

- For Presentations (like this one), designs, diagrams, whiteboards,...

## MS Office

- Everything more serious and where Figma and Notion are not an option

# My work at companies

UPC Space Program

SEAT S.A.

MIT Edgerton Center



# Digital Transformation - Internship in Production Development @ SEAT S.A.

In October 2025, I started my first internship, at SEAT S.A., a car company that is part of the Volkswagen Group and produces hundreds of thousands of cars every year. This was my first time working at a company of this size, as most of my life I have worked with smaller groups with little to no bureaucracy.

Even though this was a challenge at first, I got to learn a lot about the inner workings and the car production. My work mostly involves the creation of prototypes for digitalizing processes and systems that either take too long or are too inefficient.



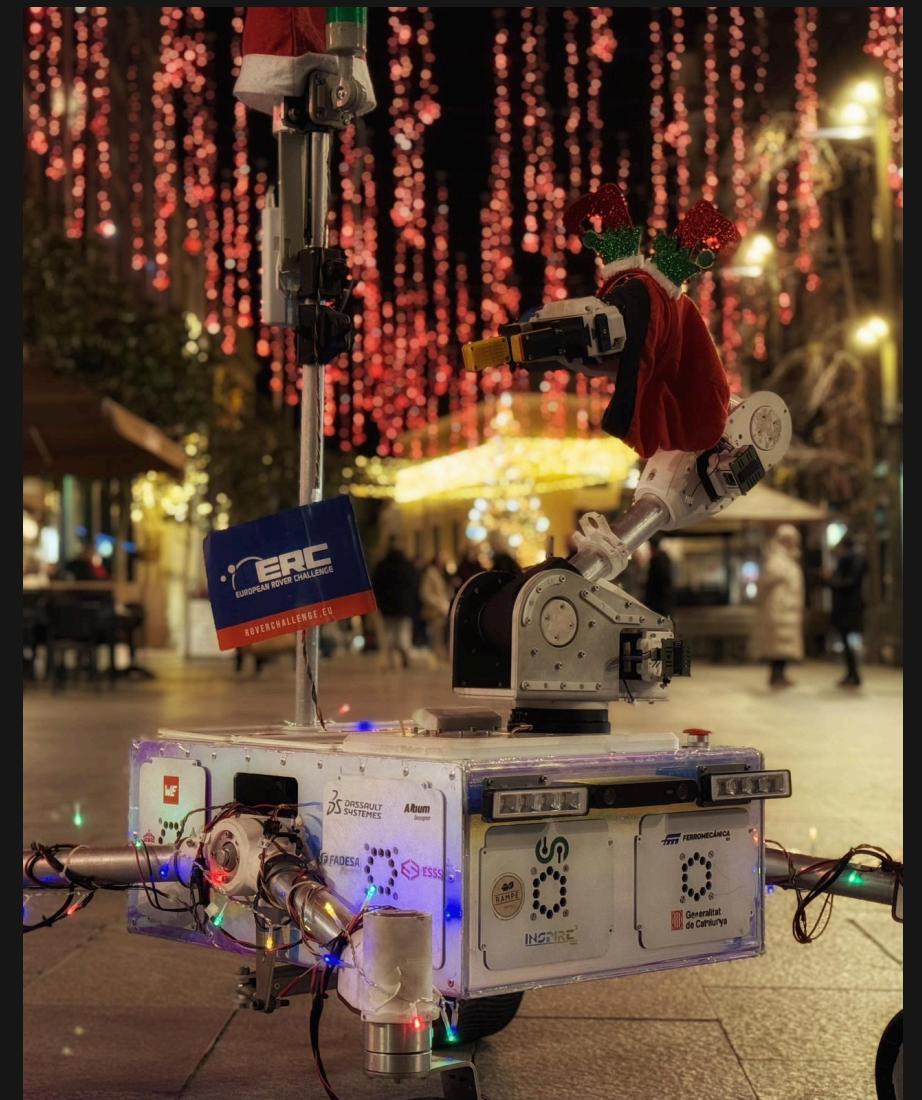
# Leading a +30 group of engineers, scientists, marketing & business team

## - Mission Manager @ UPC Space Program

After 3 years at UPC Space Program, two as the head of software and one as a junior software developer, I was elected to lead the team in October 2025. My goal is clear, to push this team forward and improve our scoring in the competition. We face several issues, including:

- Losing half the team after the 2025 season
- Due to mismanagement, no clear vision for 2025-2026 was set and the team lacked resources and strategies to succeed.
- There were internal divisions in previous years that needed to be resolved.

During my first months, I implemented Notion as the main organization channel, provided a vision and schedule for the 2026 season and my team started thinking of team building activities to improve peer to peer relationships. The team is still full of issues, but slowly, we are arriving at a better position than last year.





# A move to autonomous navigation and the “fully controllable rover”

## - Head of Software @ UPC Space Program

During 2023 and 2024, I served as the head of Software for UPC Space Program’s GRASS Project, with the aim of designing and building a Martian rover to compete in the European Rover Challenge. We achieved a lot of milestones, like designing a new autonomous system, allowing for the rover to move without human intervention during operations, a redesign of the Graphical User Interface (GUI) and addition of monitoring systems to check for the current status of all rover systems.

Even though from the software side of things, the rover was capable, we suffered from lots of issues with the traction system, where the wheels would report a certain orientation, but actually were up to 45 degrees off. Issues we aimed to resolve for the 2026 season.



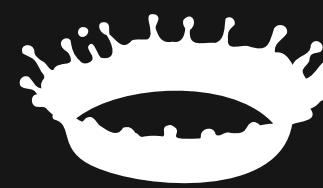
# TechProjects and the Engineering Design Workshop

## - Senior Mentor @ MIT Edgerton Center

After being a student from 2019 to 2022, In 2022, I was given the opportunity to become a mentor, helping students work on projects, providing advice and giving presentations on our work. This role gave me the opportunity to travel to Italy and the United States to host hackathons and Engineering Design Workshops

- The main objective of the Edgerton Center is to provide hands-on education to students and pushing for an update in our education system to bring more of it to the classroom.
- During my work with them, I run workshops with high school students (e.g. TechProjects or the EDW), organized and run activities with middle schoolers.
- I also got the opportunity to present at the American Association of Physics Teachers ([Link](#) | [Presentation](#)) in 2024.
- I recommend reading [this](#) article, where all of this is explained by Edward Moriarty, with whom I have worked with very closely for the last 7 years.





Every year, I am part of Hackathons, EDWs and mentor groups around the world in Zoom calls and locally by traveling to other countries. Here is a short video of the 2023 Hackathon, my first ever hackathon as a mentor.