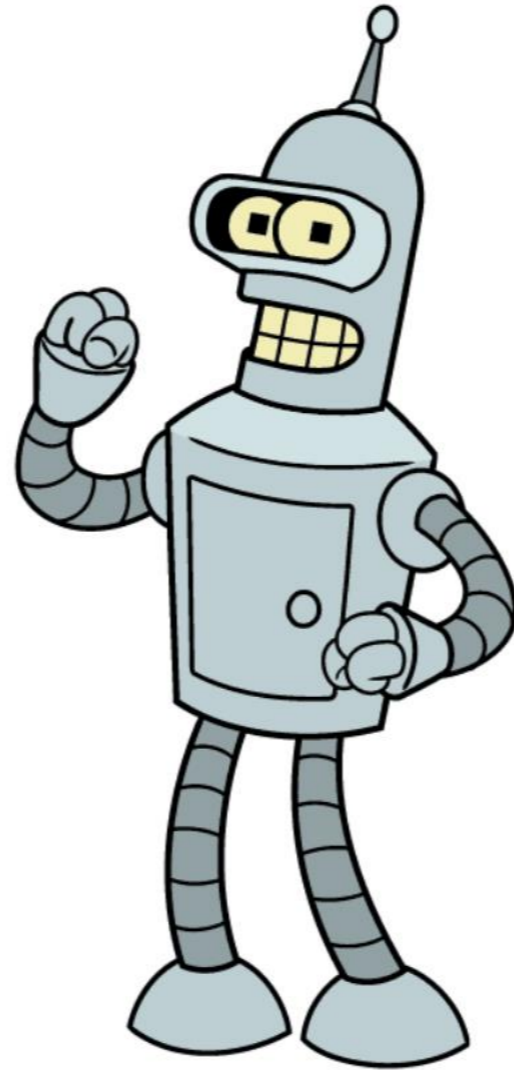


The advantages of having a PhD in a company



Guillem Belda-Ferrín

A little bit of me 🤪

- Sep. 2009 – July 2015

Bsc., Msc. in Math, internship, barman work, etc.

- Sep. 2015 – May 2016

Started PhD in control theory, still barman/auditor work

- May 2016 – May 2017

Quit PhD, just auditory... 💔

- May 2017 – Oct. 2022

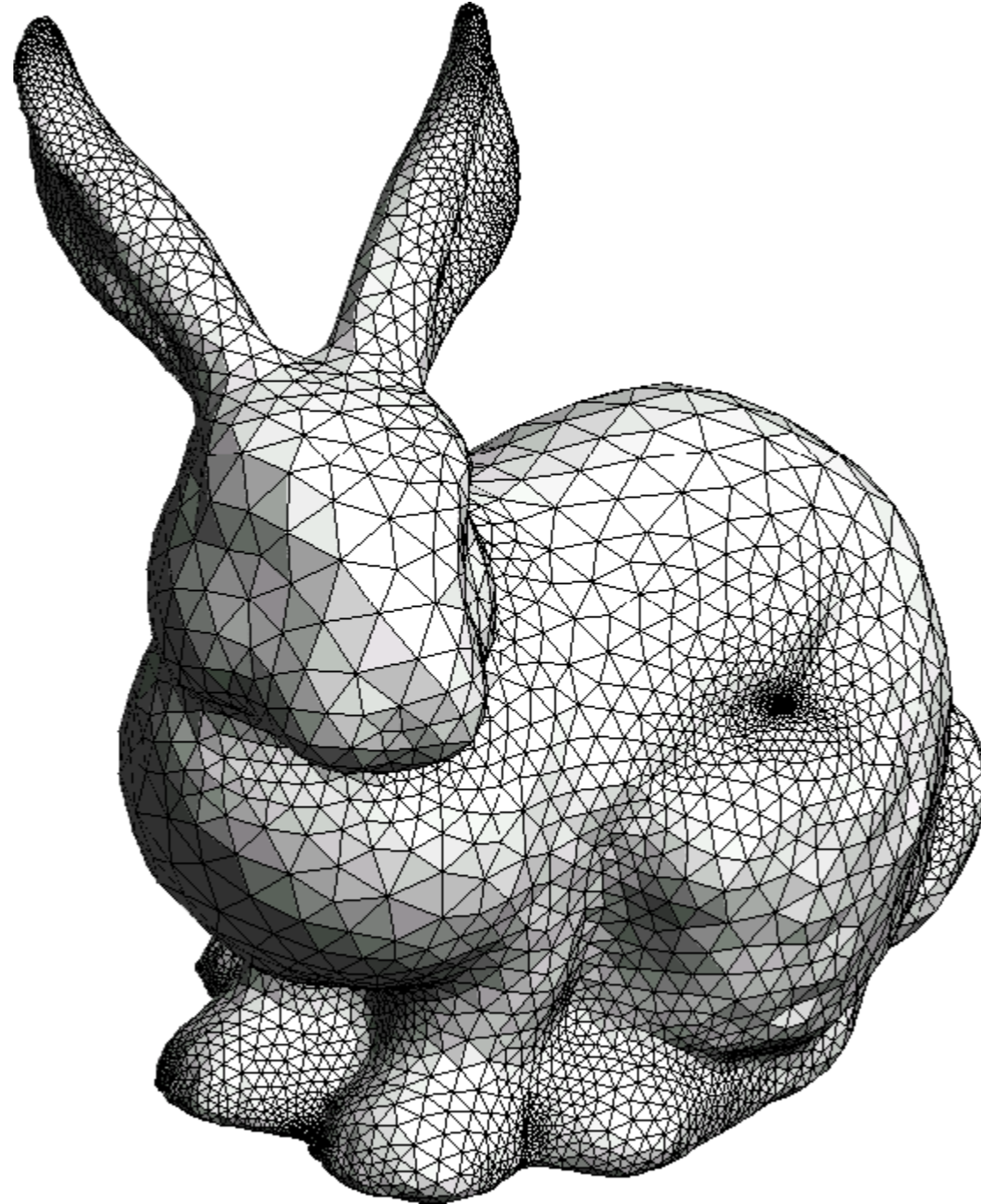
PhD at BSC, advised by Xevi Roca and Eloi Ruiz-Gironés

- Dec. 2022 – present

R&D at **Robotic Automation** (Hexagon MI) 🤖

I did my PhD about meshes!

What is a mesh?



What do I do in the company?

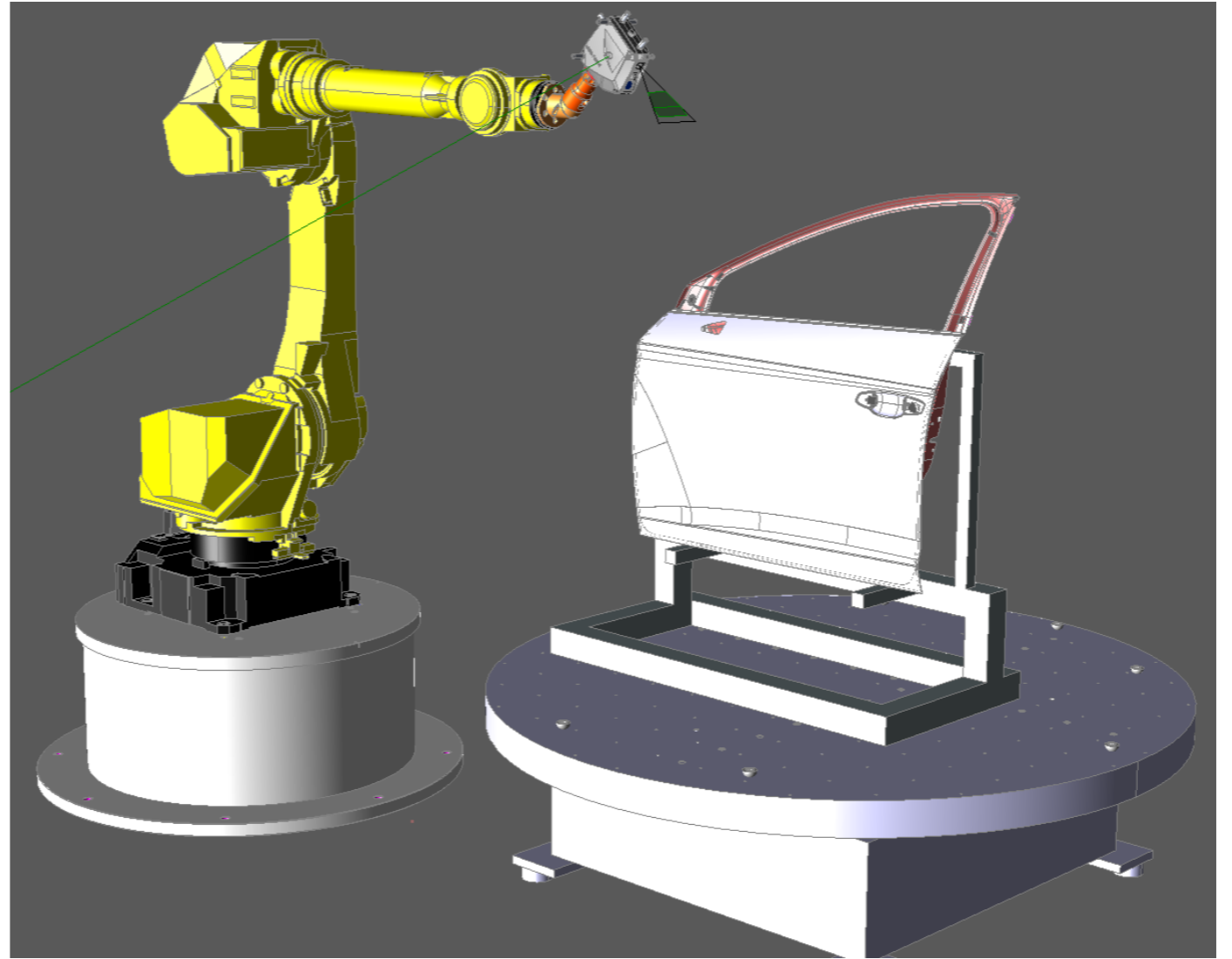


Metrology!

We measure things with a laser scan to quality control



Robot arm scanning

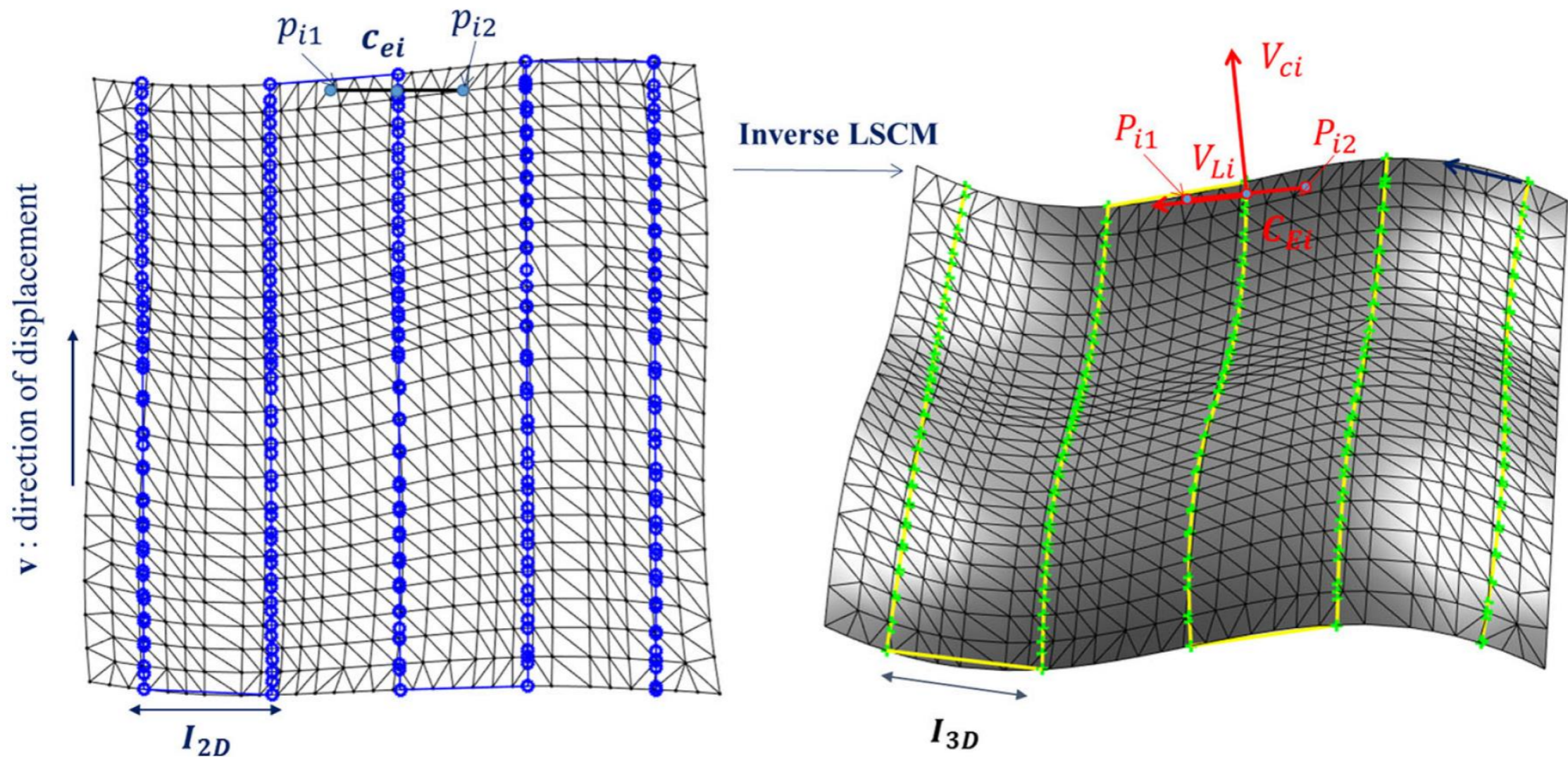


Simulation of a robotic arm

What do I do? 1 – 3

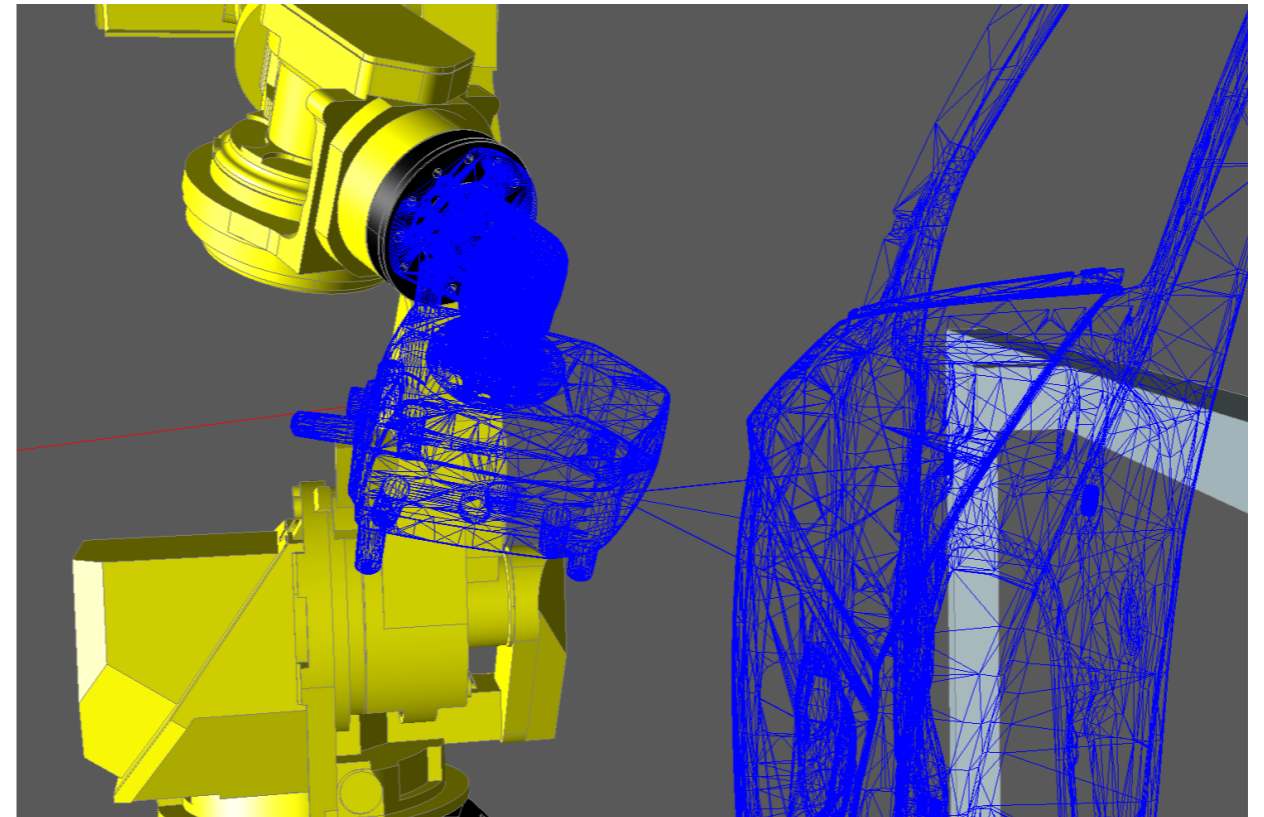
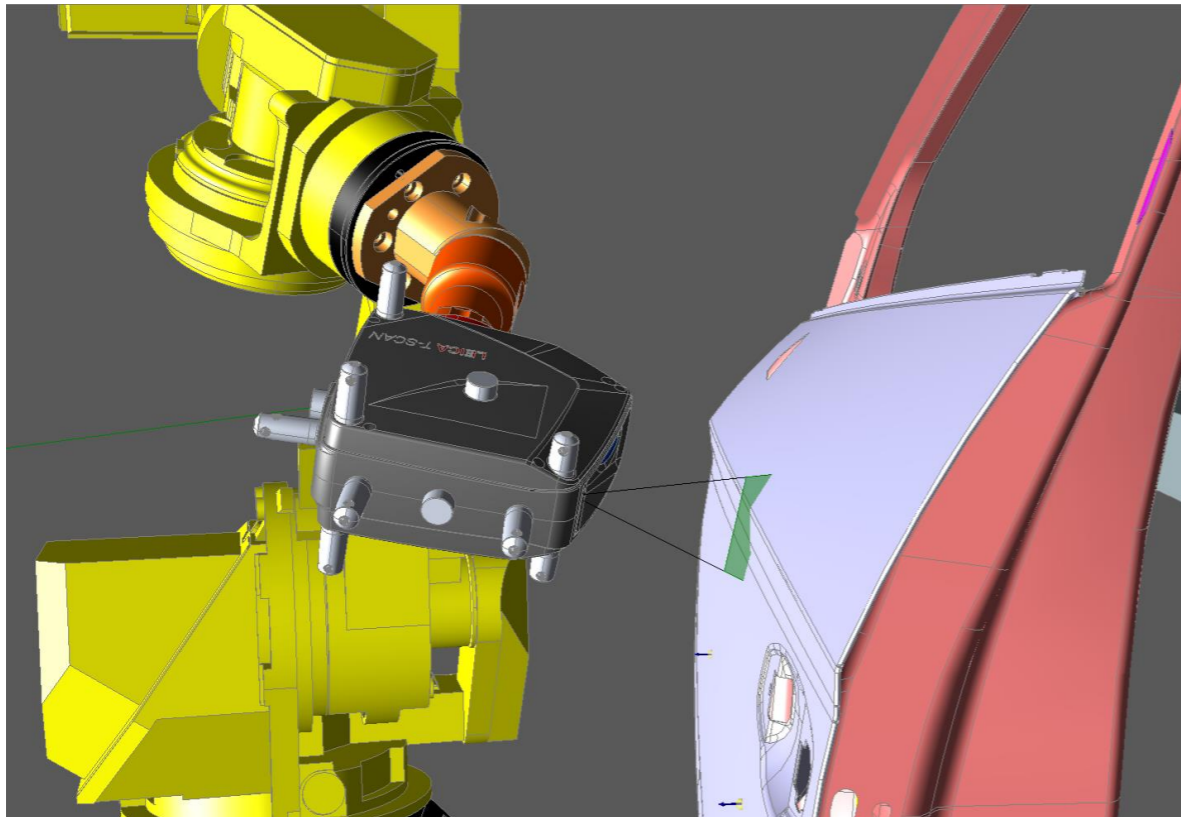
Improve path planning to handle curvature

Automatic path planning (it's a TSP, NP-Hard)



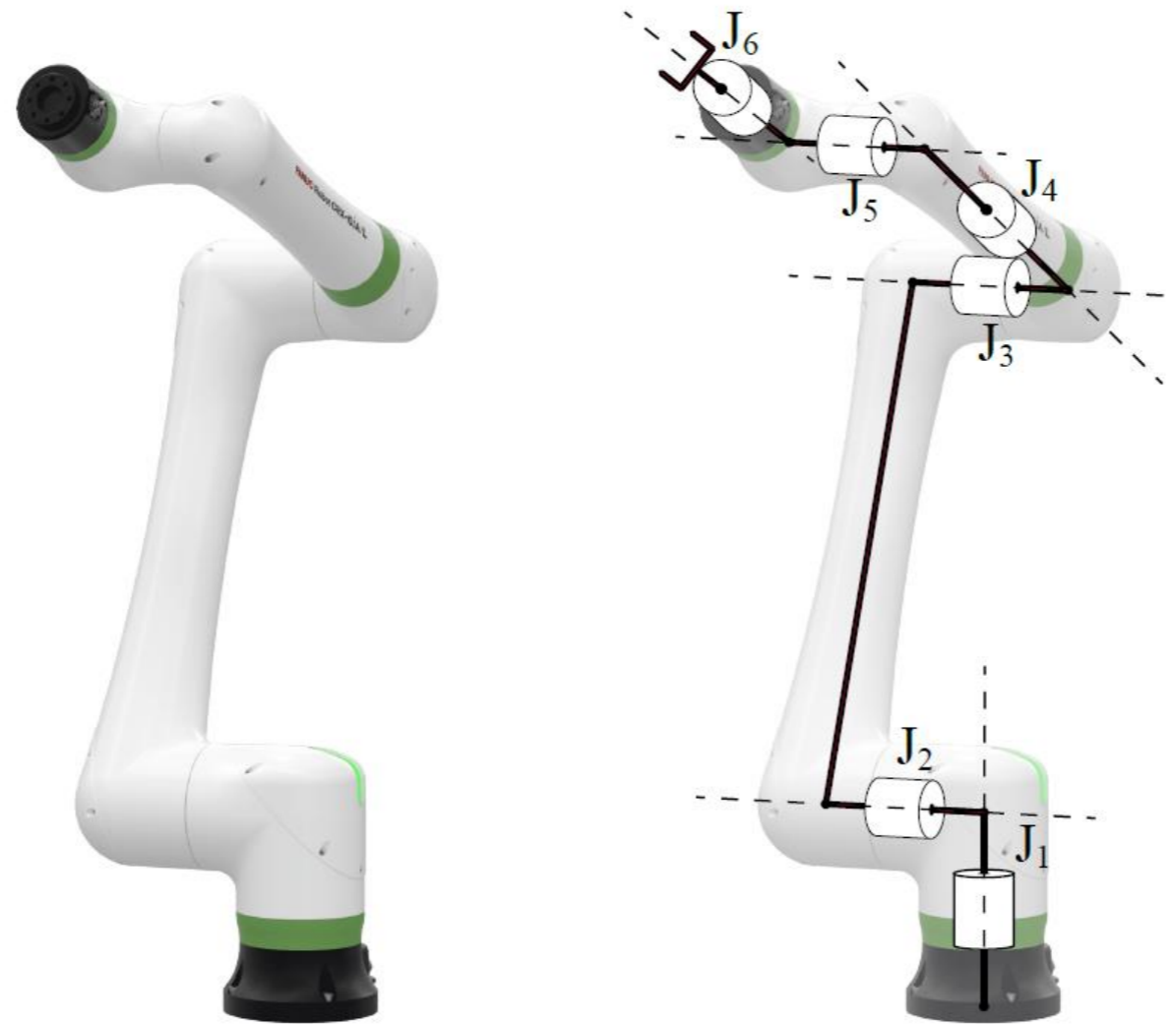
What do I do? 2 – 3

Collision detection



What do I do? 3 – 3

Implementation of inverse kinematic of new robotic models



Disadvantages of researching in a company

- **The research is “bounded”**

It must fit the priorities of the company

- **All math-related problems end at you**

People tend to think that we are calculators

- **Sometimes, there's a lack of scientific culture**

Reinventing the wheel day after day

- **Everybody wants AI-things**

Skynet, Ilévame pronto...

Advantages of researching in a company

- **Stability across all categories**

Economic, emotional, and professional

- **New tech challenges**

Being inside the wave

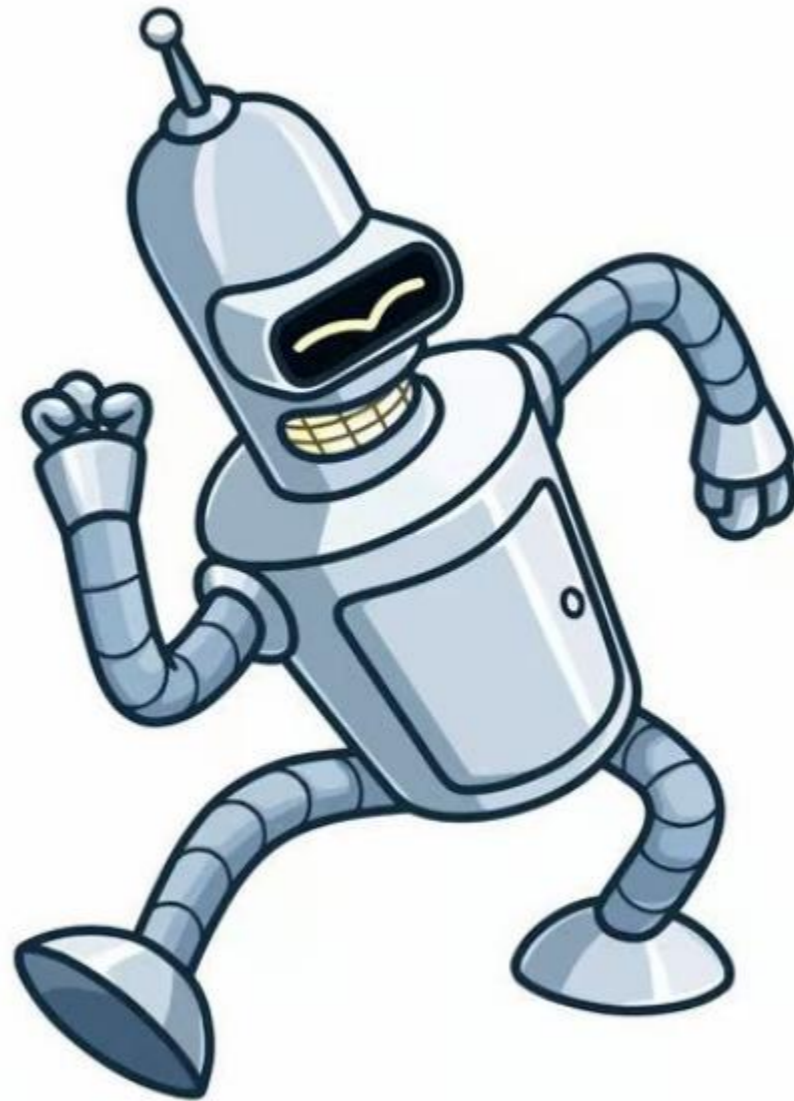
- **Direct application of your research**

Instant usage of your research

- **Working with experts in their fields**

Learning out comfort zone broadens your horizons

What about the advantages
of having a PhD?



Advantages of having a PhD – 1/2

- **Demand is increasing**

There are specific positions where having a PhD is mandatory

- **PhD starts to be recognized**

Industry values researchers from academia

- **Our value is beyond coding**

We develop solutions, not lines of code 😊

- **PhD time is also experience**

You already worked during your PhD, you're not a junior

Advantages of having a PhD – 2/2

- **State of the art**

Discard ideas, know what is going on, and find new opportunities

- **Scientific approach**

New problems demand new ideas

- **Multidisciplinary teams**

PhD in Applied Mathematics are all-rounders

- **You already have a PhD**

Something to embrace yourself, kick out impostor syndrome!

If I want to work in a company,
is the PhD invested time worth it?



For sure it is!

- The research is a profession, not a job
- Need guidance, opportunities, and time
- Academia provides a controlled learning environment
- PhD is about skills, not job titles

Is about learning how to tackle new and unknown challenges,
while a normal degree is how to solve existing problems

Conclusions

- We fit in so many areas!
- It's necessary to establish a relation **academia-industry**
- Some positions are PhD-dependent: high-tech and R&D
- **PhD is not only about knowledge but is also about scientific skills**

Thank you all!

