The advantages of having a PhD in a company

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A little bit of me 😜

  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, llévame 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?

Yes indeed!
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!