

# Lessons learned from my doctoral studies

*or How I learned to (not) stop worrying*

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# Who am I?

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- 🎓 PhD graduate from **Università della Svizzera italiana (USI)** in Lugano (🇨🇭).
- 🎓 Currently at **University of Oxford** (🇬🇧).
- 🔬 Working on machine learning for **time series** and **graph processing** with applications to **cyber-physical systems**.



# Today's talk

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I will talk about **my experience as a PhD student** and **what helped me** during my studies.

- Disclaimer: **no two experiences are the same.**
  - **Your experience** might be different from mine.
  - I hope hearing what worked for me might help you find **what works for you.**

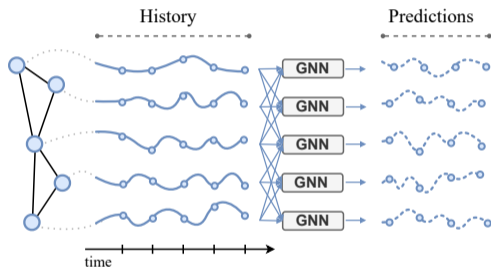


Photo taken on my first day in Lugano.

# What was my thesis about?

I worked on **graph deep learning (GDL)** methods for **time series forecasting**.

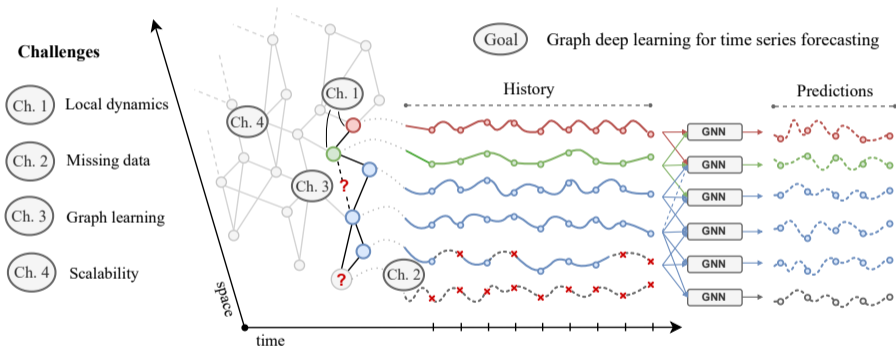
- **Graphs** can **represent relationships** among time series.
- Allow to introduce **specialized neural networks** that are **effective** and **data efficient**.



My thesis focused on **understanding** these models and making them **practically viable**.

[1] Cini et al., "Graph Deep Learning for Time Series Forecasting", ACM CSUR 2025.

# A smooth journey?



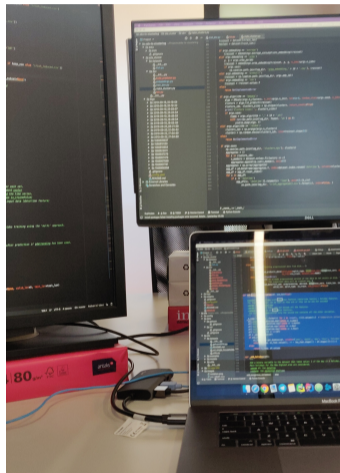
This might look like a structured path...

... but the reality is very different.

# My experience in shaping my project

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- It took me a while to realize exactly **the direction** I wanted to follow.
- Many things I worked on early on haven't even ended up being included in my thesis.
- My advisor gave me a lot of **freedom** and good advice
  - This really helped me develop **my own approach to research**.



# Finding your path

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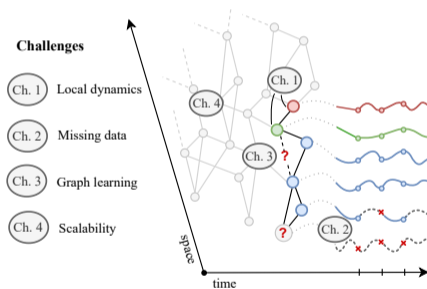
The first question we all try to answer is: **what should I work on?**

- Work on something that **feels relevant** and **fun for you**.
- Usually, your advisor helps define the **high-level topic you work on**.
  - Ideally, it is something that fits well with the research group.
  - But ...
- ... realize you are an **active** part of the process, it is **your PhD**.
  - Learning how to do **independent research** is the main objective of a PhD.
  - Ask your advisor for advice on **how to do research**, more than on what to work on.
- **Be open to detours** and change of plans! But ...

# Balance exploration and exploitation

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- At some point **commit to a project**, even if you feel uncertain.
  - You will **learn a lot** and most likely stumble upon something **we don't quite understand yet**.
  - Start from the **practical problem** and ...
    - ... translate it into a **methodological/theoretical research question**.
- This **problem-driven** approach can work very well.



# Collaboration is important

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- Collaborate with people you like to spend time with!
  - Choose collaborators wisely, the human aspect is very important.
  - This really helped me!
- Learn to **set expectations** for you and your collaborators and **be reliable**.
- However, it is easy to overcommit. Learn to say no!
  - Even if it feels like a **missed opportunity**.



Celebrate every milestone!

# Build your network

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- Get in touch with people in your field.
  - **Conferences** are a great opportunity.
- Plan for **research visits/internships** if you can.
  - A good opportunity to **apply your work in a different context**, step out from your comfort zone.
  - Understand what **funding opportunities** you have as soon as possible.



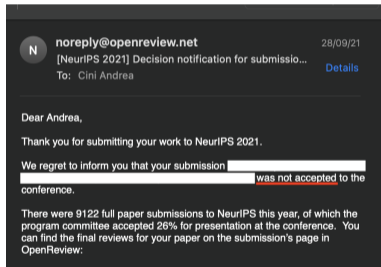
First day of my visit at Imperial

# Dealing with uncertainty and failure (i)

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Psychologically, **dealing with uncertainty** for me was **the most difficult part** of doing a PhD.

- It can take **a long time to see the results** of your hard work pile up.
- **No easy recipe** unfortunately, but try to
  - ... dedicate time to things that make you feel good.
  - ... accept that **failure is possibility** and live with it

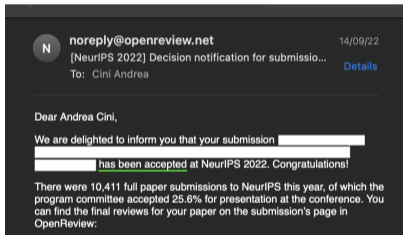


You will have to go through mails like this.

# Dealing with uncertainty and failure (ii)

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- Focus on the process, not on immediate results.
  - Determination often pays off.
- Again, no two experiences are the same.
  - Don't compare to others.
  - Numbers don't tell the full story.
- If you are struggling, ask for help.
  - Talking to your advisor is always a good start.
  - If you feel something is missing, be open about it.



But don't give up :)

# Have fun!

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- We are doing research because it is fun!
- A PhD allows you to see many places and **meet people from all over the world.**
  - It's an incredible experience, enjoy it!
- Although often very stressful, I really **had the best time of my life during my PhD.**

## Thank you

