

Final report

Internship abroad

Personal data and general information on the internship

Subject of studies: Neuroscience

Bachelor/Master/State exam: Master

Time of internship: 09.03.2026 to 08.05.2026

Place of internship: Milan, Italy

Internship institution: Bocconi University

Guidelines:

- The report should have a length of at least **4 DIN A4 pages** (Times New Roman, 12pt, 1.5 line spacing)
- If you want to give names, please do not give the full name of the person. Use only the first name or abbreviations such as "L."
- When integrating photos, please note that your report requires the consent of the person(s) photographed when published and distributed.
- Please save your report as a word document (max. file size: 8 MB) and upload it to MoveON.
- If you are looking for a little inspiration for your own report or would like to compare your experiences with those of other students, please feel free to have a look at our [website](#).

You may structure your report as follows:

1. Planning and preparation (e.g. application process, finding accommodation, language course)
2. Internship (tasks, typical workday, workload)
3. Social contacts
4. Everyday life and leisure
5. Financing (cost of living, shopping tips, relevance of the Grant)
6. Internship and studies (Were you able to apply what you learned during your studies, how has the internship changed your motivation to study and/or your attitude towards your future profession)
7. Conclusion (were your expectations met, challenges, particularly defining experiences, tips for future interns)

From 9 March to 8 May, as part of my master's degree in neurosciences at the LMU, I completed a short-term research project in the Department of Computing Sciences at Bocconi University in Milan.

Planning and preparation

As part of my degree programme, I have to complete three short-term research projects of around eight weeks each. I wanted to do at least one of these somewhere abroad. In thinking of how I could finance it, I was initially focused on LMU's PROSA (this was the first thing that showed up when I googled around). I had seen, however, that this programme had received a lot less funding this year than in previous ones, and so I wasn't feeling very optimistic.

I first came across the researcher I ended up doing the project with in a seminar I completed in my third semester, where we read a number of his papers. His analytical approach to studying neuronal networks immediately caught my interest, and I decided that I'd like to complete my third and final project with him. Yet, I still didn't have any funding or any plan.

It was in talking with some people in my class about this that someone who had done his own project abroad with Erasmus+ in the previous semester told me about this opportunity. This sounded promising, so I made an appointment with the consultant at LMU to find out more.

After a pleasant and encouraging chat with the consultant, I started my application for funding from Erasmus+. The application itself was one of the smoothest and least demanding ones I have done in my life.

I would recommend anyone who wants to do an exchange but is not sure where to start to simply book an appointment with the Erasmus+ consultant at LMU, who is extremely supportive and helpful. I would also recommend having a specific project lined up already, as this makes the rest of the process much easier.

For academic scheduling reasons, everything in my case was a bit last-minute (the deadline for the application is a generous four weeks before the start of the internship). For the most stress-free experience, I would recommend starting the application earlier rather than later so as to leave some breathing room after receiving the confirmation. Speaking of last-minute...

Finding accommodation was no easy feat, and I had a number of sleepless nights about this. To be fair, I also left this for too late, and I started to search properly only after receiving confirmation from Erasmus+. So, I would recommend, especially for an oversaturated city like Milan, to start looking as soon as possible (once again, common sense, I guess).

It turned out to be almost impossible to find accommodation for such a short period of time on the standard Italian housing platforms like Idealista etc. since the overwhelming majority of people on there are looking for someone who will stay for a minimum of three months (and in the large majority of cases, minimum six). I also joined and posted on a whole lot of Facebook groups, to no avail. In the end, an embarrassingly small number of days before the start of my internship, I managed to find a room in a shared flat over Airbnb. It was squarely out of my budget, but my project supervisor kindly managed to organise some additional funding for me that made it possible.

Organising transportation was easy. FlixBus is the cheapest and fastest option between Munich and Milan, and it has the added bonus that it follows a beautiful route through the Alps.

I did not do a language course. I strongly feel, however, that if one is living in a country, one should at least be trying to learn its language. So I turned to Duolingo, constantly attempted to decipher the snippets of conversations and written things around me in my everyday life with my knowledge of French and Spanish, and very often went down grammar rabbit holes with the help of the ever-present tutors that live in my phone in the form of LLM chatbots.

Internship

My internship was a miniature research project on models of biological neuronal networks, making use of mathematical techniques from statistical physics.

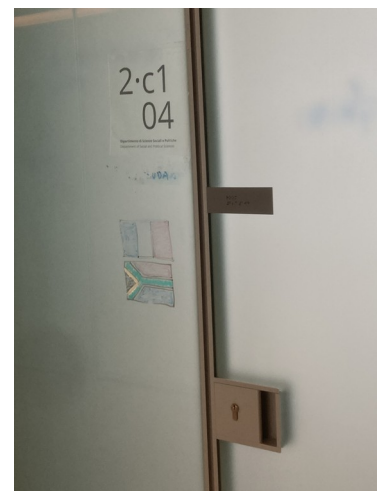
I investigated the effects that finiteness has on a neuronal network of so-called conductance-based neurons, as compared to mathematically simpler (but less biologically plausible) current-based networks. This is an interesting question, as finiteness tends to clash with the assumptions that you use to make the maths work out in the first place, and it therefore requires careful and creative thinking.

To get into this, I first had to take quite a bit of time to familiarise myself with the mathematical methods used in such a calculation. I'd seen similar things in other physics-based contexts before, but transferring it to the domain of biology was something new for me. This process involved in the first place just deriving

mathematical expressions for myself, as well as familiarising myself with the coding language used for the simulation of such networks.

The actual work involved a number of intricate mathematical derivations, and this is what consumed most of my working time. In addition to this, I coded the simulations as a starting point for the comparison of theory and reality. The work did not stop here, since once I finally had analytical expressions, they also had to be solved numerically. In the end, everything then still had to be compared to the known case of current-based networks.

I worked every weekday from around 09:00 to 18:00, which works out to around 40+ hours of work a week. On some weekends I also worked a full or half day. I was lucky to have a comfortable office shared with one other person, which allowed me to focus really well.



As in all universities, functioning whiteboard markers are impossible to find, but my office mate and I tried our best.

Social contacts

My main social contacts were with the people in the research group of my supervisor at Bocconi (and my very pleasant office mate). We often went out for lunch together or met up for coffee in breaks between work. Sometimes we also hung out over the weekend. Most people in the group, however, were either PhD students or postdocs, and so tended to be older and have their own well-established lives and routines already. Many also tended to live outside the city or in nearby towns.



This is what Parco Sempione, the biggest park in Milan, looks like on an average Saturday in April.

As my time in Milan was very much focused on my work, I did not prioritise socialising and meeting new people so much. Most of the connections I made outside of the university context were on spontaneous nights out in the city. I also did some weekend trips, where I connected with fellow travellers in the hostels I stayed in.

When I first moved into the flat in Milan, I shared it with one other person who was unfortunately non-functional and immensely inconsiderate. Luckily, however, the agency did not renew his contract at the end of March, and I soon got some nicer roommates. One of them was from Ukraine, and I had some great interactions with her – both of us liked to cook, and she made me some Borscht at one point as well.

Bocconi University is a private university and so it was my impression that everything tends to happen behind closed doors or behind some sort of paywall. This means that there are unfortunately not so many spontaneous student or campus events, and those that there are tend to be open to registered and enrolled Bocconi students only.

Everyday life and leisure

I was lucky in that my accommodation was within walking distance from the university. My route also lead through a park. Walking from the flat to Bocconi

in the early morning and back in the late afternoon while taking in the sights, sounds and atmosphere of the city was a daily treat for me.

To stay fit apart from all this walking, I went swimming in one of the public pools at least once a week (it is unfortunate that my sport of choice is not a very social one).



I tried my best to see and do as much as possible over the weekends. Of course, Milan itself has a lot to offer, and I made sure that I saw at least the main sights. Towards the end of my stay, I also got to see Da Vinci's famous *Last Supper* for free (more on this in a bit).

I went to Florence on the weekend of Italian Liberation Day. On that day, I also went to watch the (fitting) film *Porco Rosso* with an Italian guy I had met at the hostel. The only problem was that the movie had a Japanese soundtrack and Italian subtitles. It goes without saying that my language skills were overstretched that night, but I was pleasantly surprised by how much I was actually able to at least get the gist of the dialogue from the subtitles (Japanese, however, is Greek to me).



Sightsee too much in Florence on a hot April day and you might end up like this.

On another weekend, to escape the air pollution (Milan has a bit of a problem with this), I went to a small town on the Lago Maggiore for a bit of hiking and reading. There are also many other beautiful lakes close to the city to discover.

All of this travelling is pretty affordable if you book everything far in advance and cook your own food. The trains in Italy tend to be cheap (at least compared to Germany) and reliable.

With Florence, I was lucky to have unintentionally timed it so that I would be able to go to all of the famous art museums (which cost a fortune) on Liberation Day, when all the museums are free to enter. The *Last Supper*, which I saw on my last weekend in Milan, is free to view on the first Sunday of every month, and you can get the tickets online the week before if you are fast enough.

The point is that you can see and do a lot for not a lot of money if you keep your eyes and ears open and your wits about you.



Pasta e fagioli. This, incidentally, was also my last supper in Milan.

I also made a real effort during my time in Milan to teach myself Italian cooking. I cannot recommend this enough to anyone doing an exchange in Italy. As I came to see it, Italian cooking is all about deceptively simple dishes where each of a small number of ingredients plays a substantial and distinct role (but if you mess it up, grating some pecorino cheese on top makes anything better).

Financing

This internship would not have been financially possible for me without the funding that I received from Erasmus+. Accommodation was by far the biggest expense, and, as mentioned, I was super fortunate that my supervisor also provided additional funding for this purpose.

From my impression, Milan is roughly comparable to Munich in terms of costs of living (I am not talking about accommodation now). You can get away with probably around 40 euros per week for groceries, plus let's say 30 euros for eating out and at the Mensa. The Bocconi Mensa is unfortunately expensive if you are not an enrolled student, and though I enquired, they did not want to offer me their subsidised student prices.

As in Germany, you can shop for pretty cheap at any store if you stick to the store-name brands. Personally, I frequented the Conad close to the Bocconi campus, which is compact but has everything you need. I appreciated how affordable high quality food is. As mentioned before, this is especially important if you're cooking Italian food.

Internship and studies

I was able to very directly apply the knowledge that I had picked up during my present studies to the work I performed in Milan, especially the neuroscience domain knowledge, thanks to which I was able to quickly get an intuition for the system and understand its context and relevance. My physics background had prepared me for the maths. What it did not prepare me for, and this is just as

important, is understanding the limitations and merits of such a model as a representative of reality, which are things that one can appreciate only with a biological point of view.

The work that I did during this internship was the most satisfying I have done in a long time. I credit this to its content, its techniques and the focused attention I gave to it. Up until recently it was still unclear to me what I want to pursue in my doctorate. This internship was therefore invaluable in that it soon became clear to me that this is exactly the type of work that I want to be doing in my PhD – not necessarily the specific content per se, but the methods and the ways of going at problems.

I also immensely enjoyed working with my supervisor and with the people in his group. My supervisor was always available for a chat and had some helpful impulse to offer every time, and I also had some great discussions with his students about my work.

All in all, this experience very much fired up the spark in me to want to pursue a career in research with new fervour.

Conclusion

I tend to not go into new experiences with too many expectations, so that everything turns out to be either not too much of a drama or a pleasant surprise. My time in Milan turned out to be the latter: immensely valuable, enriching and simply downright fun. Academically, the subtle expectations that I did have of myself were reached and overshoot – I did not think that I would get so sucked into the work in such a small amount of time.



There were, of course, also some challenges. The initial accommodation situation with the horrible roommate did make my first few weeks in the city a lot more stressful than they otherwise could have been. And, as I hinted at before, I also found the university to be quite lifeless and not very rich in offerings for people in my situation.

Although they are also woven in throughout the text, I reiterate below some quick tips for future interns.

- Get your Erasmus+ application in early (despite the generous deadlines).
- Start looking for accommodation very very early.
- Be sure to try your hand at Italian cooking: it's fun, quick and delicious.
- Keep a sharp lookout for deals to see usually-expensive attractions for free or for a reduced price.
- Take advantage of the cheap long-distance trains in Italy for weekend trips.

- If possible, go to a public university for the exchange.
- Try speaking the language, even if it's not great. In Milan at least, I had the feeling that people appreciate the effort, and you also improve much faster that way.
- Try all the different Spritz varieties that Italy has to offer, not just Aperol.