

A day in the life of a chief data science officer and co-founder of Ignota Labs



Layla is a chief data science officer and co-founder of Ignota Labs. Layla studied chemistry and bioinformatics before co-founding Ignota Labs, which focuses on using explainable AI methods to predict, understand, and turnaround safety issues in drug discovery. Layla gives us an insight into working as a Chief Data Science Officer, transitioning from academia to industry and establishing a business.

What has your education and career journey involved so far?

I studied for a MChem/BSc in chemistry at the University of Leeds, but realized that I didn't enjoy the lab as much as I thought and I wasn't sure what to do next. Thankfully, I ended up landing a year in industry placement in computational chemistry at Optibrium in my third year. While I was there, I developed algorithms to accurately predict the pKa of small molecules and had the opportunity to present and publish my work. I went on to develop my skills further during a PhD in chemoinformatics/bioinformatics and machine learning, in Andreas Bender's group at the University of Cambridge. I worked on causal reasoning methods for using multi-modal data to understand drug mode of action (MoA). I joined Ignota Labs in February 2022 and built the company from the ground up along with two co-founders Jordan and Sam, while writing up my PhD. Ignota Labs is focused on using explainable AI methods to predict, understand and turnaround safety issues in drug discovery. Ignota Labs went full-time

in October 2023 and since then we have made big technical and commercial progress (Figure 1).

How did you get into science?

I've always been fascinated by the world around me and the underlying principles that govern it. My interest in science was sparked by my enthusiastic schoolteachers who made learning about the natural world engaging and exciting.

What is a typical day like in this role?

Being in a startup, no two days are the same, and I often must wear a few hats! Being Chief Data Science Officer means that I am responsible for the development of our AI platform, considering the commercial and scientific factors of the business as well as communication of our research to stakeholders. I split my time between getting stuck into coding, speaking with investors or potential partners or talking strategy with my co-founders.

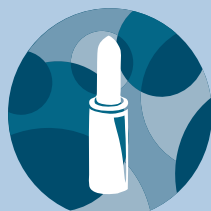
CAREERS IN MOLECULAR BIOSCIENCE



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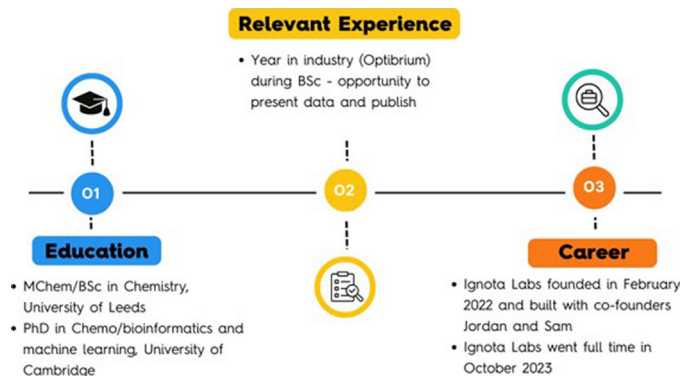


Figure 1. Layla's education and experience that led her to co-found the company 'Ignota Labs' and work as a chief data science officer.

What types of skills are needed in your role?

Strong problem-solving skills, proficiency in programming languages such as Python, a solid understanding of statistics and machine learning and the ability to communicate complex information effectively. It's also important to be flexible and adaptive – startups go through a big evolution over time.

What do most people not realize about your job?

Many people don't realize the extent of creativity required in data science. It's not just about crunching numbers; it's about crafting stories from data and discovering novel ways to solve complex problems.

What aspects of your role do you enjoy most and the least?

I most enjoy the moments of breakthrough when a model reveals a powerful insight, especially when we validate our predictions with wet-lab data. The least enjoyable

aspect can sometimes be the meticulous data cleaning process, which is important, but pretty dull!

Are there any obstacles that you have faced in your career?

Like many in the field, I've faced obstacles in dealing with unstructured data from different sources. We deal with chemical and biological data, measured using a plethora of different assays, and identifiers are often a many-to-many mapping, making data harmonization a challenging task in data science. However, FAIR (findable, accessible, interoperable, reusable) data initiatives are addressing this challenge. It can also be difficult to communicate the significance of data insights to non-technical stakeholders, though with practice it gets easier to 'speak their language'.

What is your advice for someone who would like to pursue a career in data science?

Build a strong foundation in statistics, learn to code, work on real-world projects to build your portfolio and



TEACHING



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never stop being curious about data. I always recommend internships to find what you do (and don't) like.

What is your advice for someone who would like to move from academia to industry?

To smoothly transition from academia to industry, it's important to align your academic expertise with industry needs. Focus on gaining practical skills that are in high demand and consider how your research can address specific problems that companies are facing. Sharpen your soft skills, such as teamwork and communication, as these are highly valued in a corporate environment. Regularly attend industry networking events to build connections that could lead to job opportunities.

What is your advice for someone who would like to start their own scientific business?

Launching a scientific business requires a blend of scientific acumen and entrepreneurial spirit. Start

by identifying a market need that aligns with your scientific expertise and consider how your knowledge could offer a unique solution. Build a robust business plan and seek feedback from potential customers early on. While there will be challenges, approach them as opportunities to learn and grow your business. Surround yourself with a supportive network and consider finding a business mentor with experience in the scientific sector.

Where do you see yourself in 5 years' time?

Looking ahead 5 years, I aim to have established our company as a key player in reducing drug attrition rates due to toxicity. I see myself leading a dedicated team that continuously improves our data science methods, contributing to safer drug development and more successful patient outcomes. ■