

Women in Data Science – Perspectives in Industry and Academia



**Computational Molecular
Design Lead & Science Fellow,
Bayer Crop Science division,
Chesterfield, USA**

Christina Taylor – working in industry enables me to focus more on a particular area because I am able to collaborate with experts in diverse disciplines

Dr. Christina Taylor's path to her current position as Computational Molecular Design Lead at Bayer's Crop Science division started with an undergrad degree in chemistry and minors in math and biology at the Missouri University of Science and Technology, Missouri, USA. A summer internship at Harvard University, Cambridge, USA, paved the way for her PhD in computational protein design at Missouri University. After her PostDoc at the Washington University School of Medicine, St. Louis, USA, she subsequently transitioned to a position within the chemistry department of Monsanto company. Tying in all the experiences she made during her undergrad, PhD, and PostDoc positions in academia helped her start an industrial research career. Based on her experience in small molecule design and bioinformatics, she took a deeper dive into machine learning as well as deep learning in the realm of protein design. She hence switched her assignment to a computational protein design role and with that joined the biotechnology department. Currently, she is a team lead in biotechnology at Bayer's Crop Science division, enjoying the ongoing exciting progress in molecular design.


"I think it has been a great career path and I have just followed my interests along the way"

Being asked about her career path, Christina did not see her whole career as planned beforehand. By combining her professional experiences and the research topics she is interested in, she found her way into the agricultural industry. Being selected as a Science Fellow is one of her career highlights. In the future, she aims to be promoted to Bayer Senior Science Fellow or Distinguished Science Fellow. **"The Science Fellow program not only represents scientific excellence, but it also represents the outreach and mentorship component, too"**, she adds. Beyond the Science Fellow program, Christina values outreach and mentoring of students as important parts of her work.

Christina's daily line of work is leading several protein engineering and molecular design projects at Bayer. There she tries to improve data science strategies and combines those with experimental setups. In addition, she is also leading a small team beyond being a lead in protein engineering. The work done in her department is also recognized within the company and requests from different departments concerning her projects are quite common. Working in parallel as well as multitasking is thus an essential part of the job.

"I would say that working in industry enables me to focus more on a particular area because I don't have to be an expert in everything"

In addition, when comparing life in industry and academia, Christina regards no need of chasing grants and the possibility to access resources within the company. **"While project**



prioritization is always an issue, I think one of the big things is the resources that we have to be able to test things at that larger scale", she says. Being a Science Fellow, as well as having access to industrial resources, strengthened her position to do research in an industrial setting. This being said, all of her research projects are product-focused, which fits perfectly in Christina's professional line of work. Having had this focus also in academia, working in industry enabled her to steer her projects in a more product-related trajectory. **"Working in an industrial setting enables one to be more focused on one particular thing"**, Christina shares. There are experts for every experimental step along the way and collaboration between groups is encouraged, so one can focus on areas of expertise in your own work - unlike in academia, where you often have to do it yourself. If you want to get a glimpse of industrial work life, Christina recommends to focus on internships, stating that more and more students take internships at companies.

"I wish I hadn't been as timid about some other classes I took in undergrad."

Reflecting on her career as a woman in data science, Christina remembers being often the only female in a class. That situation often was a reason for not taking certain classes in her academic career. Now, 20 years later and having two daughters, she encourages them to overlook the aspect of being the only girl in the engineering class and **"just go for it"**. Being a mother was sometimes difficult to combine with an industrial career. She learned to be more efficient in the work she is doing. Moreover, she shares family responsibilities with her husband. Working from home helped her to get more time with the family as commuting dropped out.

"Having positive role models helps, but we also need to empower each other."

As a female role model, Christina values her PhD advisor Amy Keating from MIT as being a great down-to-earth mentor with supportive perspectives and, as a mother herself, a good role model. Christina was the first PhD student to work in Amy Keating's lab, so Christina's responsibilities also connected to organizing and setting up the lab resulting in a special bond and memory to her PhD.

What was your most recent google search?

Christina's recent google search regarded the organization of traveling to Germany for a scientific conference.

*Authors: Irena Maus & Nils-Christian Lübke, ELIXIR Germany Administration Office, October 2022.
We would like to thank Christina for this very interesting interview and wish her continued success in her career.*

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