Dr. Sarah Brüningk is a postdoc working at the interface of computational biology and artificial intelligence at ETH Zurich in the Machine Learning and Computational Biology lab. As part of the NCCR AntiResist Project, she works as a data scientist, analyzing data produced within this consortium but also devising software solutions that may be useful in the field in general.

Originally from Munich, Germany, she also studied physics there at the Technical University of Munich. During high school, Sarah was fascinated by science and mathematics. She first couldn't decide which branch of science to pursue at university, and decided that a degree in physics would allowed her to remain flexible with her career choice. She always thought she would move more in the direction of astro- or engineering physics, but during her Master studies, she discovered the number of medical applications for physics and was very interested to go deeper into this direction. Sarah began to focus on physics for cancer therapy (radiotherapy) and diagnosis (imaging). Since she really enjoyed her first research project during her Master's thesis, she decided to pursue a PhD at the Institute of Cancer Research in London, UK. There, her project combined practical wet lab experiments with computational analysis and simulations aiming to better quantify the biological effects of combination therapies. Working in a biology lab was a big change for her at the time since she had never held a pipette before starting her PhD and suddenly spent most of her time working in a sterile hood. In the end it was a great asset to have hands-on experience of how the data she used for her simulations were generated and what uncertainties these measurements entailed. This experience really sets her apart from other computational researchers and she is quite proud of having produced publications in several disciplines.

After her PhD Sarah wanted to learn more about the area of artificial intelligence, since this was a topic she had not yet covered. Her postdoc research interests at the ETH Zurich are in combining machine learning and modelling for healthcare applications, embracing the clinical hallmarks of a disease in order to provide solutions that are understandable for clinicians and can be translated to clinical practice. In addition to her NCCR AntiResist work, Sarah is excited follow a more independent research idea as part of the *Botnar Research Center for Child Health Postdoctoral Excellence Programme (BRCCH PEP)*.

An interview with Sarah Brüningk:

The biggest challenge facing women scientists today is…

..I sometimes think that women tend to overthink a lot of their actions, making them less flexible and maybe sometimes too modest regarding their achievements. As such, we may have to stand up a bit more for our opinions and back up our expertise with facts rather than words alone. At the same time, the traditional academic career path involving several moves (abroad), long workhours, and ideally no career breaks are not very family compatible. Despite some positive recent changes, for example for grant applications (net academic age/transparent CV formats), there is still room for improvement.

I chose a scientific career because…

…I love my work! To me there is nothing more exciting than uncovering fresh results of a new analysis and diving deep into computational aspects of my projects. I hope to contribute to society and want to make a difference through my research at the forefront of several topics to increase our understanding of disease, treatment resistance and motivate new treatment paradigms. Academia allows for the required project flexibility and driving of new ideas.

If I were not a scientist, I would be…

…working as a data scientist in an industry setting, ideally on healthcare projects. Actually, I think there is a lot of flexibility in terms of jobs I could follow, since a background in data science is useful in a large variety of industries, so there is a back-up option in case academia does not work out in the end ;)

What I like most about being part of the NCCR AntiResist project…

…Antimicrobial resistance is a topic of global importance and it is great that as part of the NCCR AntiResist project this challenge is addressed from several different angles. For a data scientist this framework is ideal to get directly in touch with the researchers producing data sets and to collaborate closely to get the best out of the experimental and analytical aspects of this project.

A typical day at work for me…

At my current job I spend most of my time on the computer again and not in the lab. However, I work in a very collaborative team together with postdocs and PhD students coming from different backgrounds (biology / mathematics / computer science)

What I am most proud of…

To have been awarded the BRCCH PEP fellowship, which now allows me to follow my own research ideas and enabled me to establish a network of international collaborators supporting my project with data. I am really excited to see the results of this project and to continue this path.

What is your wish for girls studying science in school today?

I hope we can motivate more girls to follow their passion for science also as a career. Working in research is such a rewarding environment, and I think many young students would also be interested in this topic. I wish for more of them to explore this further. I think enjoying and being excited about your work is very important, and a career in science has so much flexibility to offer which I did not even know about when I started my degree in physics.