



system76

BIOINFORMATICS

Research

From toys to medicine, manufacturing today is highly dependent on oil-based resource extraction. Motivated to find a more sustainable way, the Novo Nordisk Foundation Center for Biosustainability (DTU Biosustain) at the Technical University of Denmark is developing new technologies in which chemicals are produced biologically.

Moritz Beber, a Postdoctoral Fellow at DTU Biosustain, is part of the computer-aided design team who are currently researching ways to translate these biotechnological projects from academia to industrial applications. Moritz depends on Linux hardware and software from System76 to streamline his work.

"I have been running Linux since I was sixteen years old. I've used many different distros over the years. Today, I use Ubuntu and Pop!_OS. I love what System76 has done with Pop! It's fast and snappy, and it saves me time, with decrypt to login taking only seconds. I really appreciate that."

I have Pop! on a System76 laptop that's a few years old, and it is noticeably faster than new hardware with other operating systems I've used in the lab."

Moritz's primary role at DTU Biosustain is contributing to the project DD-DeCaF (Bioinformatics Services for Data-Driven Design of Cell Factories and Communities). The project brings together leading European research universities and industry partners.

The academic partners are developing cutting-edge methods for using large scale data to design cell factories and communities for biotechnological applications.

The role of the team at DTU is to coordinate those efforts and integrate them in an online platform called Caffeine. This tool can be used by non-experts to intuitively design metabolic networks in their browser. The usefulness of those methods is evaluated by industry partners.

"Our team is building an accessible software platform for lab biologists doing metabolic engineering. The tools have been available but you needed to be a programmer to use them. Our lab also does robotics and lab automation, including projects like customizing protocols for pipetting robots."

Moritz uses a variety of open source programs during the work day, such as vim, Python, Jupyter Notebooks, tmux, and Oh My ZSH. Moritz is an active contributor and maintainer in several open source communities.

"I maintain Python libraries for cobrapy and cameo, which are tools for metabolic modeling and engineering. It's exciting to see the growing community for these projects on GitHub and Gitter."

In addition to their local machines, Moritz's team uses microservices architecture through Google Cloud with a Kubernetes (K8s) cluster, continuous integration and delivery via Travis CI, and the university's two High-Performance Computing Clusters (HPCCs) that run Scientific Linux.

Linux thrives in these types of hybrid computing environments, from HPCCs all the way down to single board computers like a BeagleBone or Raspberry Pi. Connect with System76 to learn about the company's computing solutions and how they can accelerate your work: <https://system76.com/contact>