Marcus Munch **Grünewald**

Data Scientist

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Data scientist with a background in microbiology

The story goes that I got my first computer at about 10 years old — and never looked back since then. I've always loved finding patterns in complex systems, and picking up programming was therefore a no-brainer for me. "Hidden in plain sight" to me describes both microbiology and data science, and it therefore makes perfect sense to combine the two.

Work experience

During my years at Statens Serum Institut, I have worked on expanding my data science skills to become greatly familiar with working in SQL databases as well as developing an R package for effectively keeping track of data over time.

Despite the academic team at TestCenter Danmark being my very first position after graduating, I was trusted with many responsibilities. The swiftly changing setting put on us by covid-19 taught me to keep my head calm in pressured situations and gave me a lot of invaluable experience.

Disease Dynamics and Forecasting, Epidemiological Research
Statens Serum Institut

Data scientist — *May 2022 –*

- Pre-processing of data from national Danish registries for research and health surveillance purposes
- Consulting on strategies for optimising data pipelines
- Primary developer of an R package for managing data with slowly changing dimensions
- Managing user permissions in a smaller-scale SQL (Postgres) database
- Development of bash and Python scripts to standardise workflows
- Assisting in developing strategies for interfacing in a data warehouse context

TestCenter Danmark
Statens Serum Institut

Academic employee — *Aug 2020 – Apr 2022*

- Development of a framework for efficient random checking of test results to assure quality
- Collecting ad hoc data to guide solutions for problems impacting production
- Providing support for round-the-clock analysis of up to 100.000 daily qPCR samples
- Fully automated collection and regular visualisation of key performance indicators

Programming experience

This CV was written in Rmarkdown, building individual sections from YAML files. The resulting PDF was built using pandoc on Linux. The source files are hosted on a GitHub repository which also builds my personal website, including this CV.

In summary, I am confident working with (among others):

- R, including
  - The tidyverse
  - Package development
  - Automated report generation with Rmarkdown
- Python
  - Scraping and text mining
  - Automating simple tasks such as file organising with minimal required input
- Git, including GitHub and GitHub Actions
- SQL
  - Postgres, MSSQL and the abomination that is SQLite
- Linux (Ubuntu), including bash

Education

The increasing sensitivity of techniques in biology and medicine combined with increased availability of computing power drive a large demand for knowledge of both areas. Because of this, I tailored my MSc in biology for high-throughput analysis and data automation.

Chr. Hansen A/S, University of Copenhagen

MASTER'S THESIS   *2018-2020*

- Collaborative work between departments of Discovery and Bacterial Physiology
- Analysis and visualisation of data from high throughput screening using R
- Automation workflows for compilation and organising data from various sources

University of Copenhagen

MSc BIOLOGY   *2017-2020*

- Bioinformatics of High Throughput Analyses
- Evolutionary Medicine
- Experimental Design and Statistical Methods in Biology
- Linux and Python Programming
- The Human Microbiome: Experiments

University of Copenhagen

BSc BIOLOGY   *2011-2016*

- Food Microbiology
- Loading, Transport and Modelling of Pollutants in Aquatic Environments
- Paleontology
- Zoophysiology

Greve Gymnasium

STX   *2005-2008*

- Music A
- Mathematics B
- Physics C

Outside work

When I need to untangle my mind after a day of data exploration, I thankfully have numerous ways of doing so. While I do enjoy fiddling with various small programming projects on my Raspberry Pi at home, I also enjoy music a lot, having both played drums in a number of bands as well as in student revues during my time at university, where I have also sung and directed.

I live in Østerbro, Copenhagen with my girlfriend and our two year-old daughter, who is about as fond of music as myself, and when I want to go completely off the radar, I enjoy few things more than a walk, talk or dance with her.