

Hielke Walinga

Personal

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About

In my career I often worked on the interface of engineering and software. Here I was able to capture the undocumented details into structured computer programs, and deliver a software solution from start to finish ensuring high quality and its deployment.

Work experience

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| 2024/10-current | Bioinformatician
Amsterdam UMC Department Core Facility Genomics
Worked on lab automation and LIMS with Django + React web apps, and genomic data analysis on an HPC with Snakemake and Slurm. |
| 2020/2-2024/10 | Software engineer
Single Quantum scaleup manufacturing single photon detectors
Developed a Laboratory Information Management System (LIMS) using Django and VueJS for managing and analysis of test data to replace the old system using Google Sheets to a SQL database. Then assisted in rolling out Airtable as the Enterprise Resource Planning (ERP) system and connecting it to existing infrastructure. |
| 2023/5-2024/1 | Data engineer
Genescape startup advising on targets for novel drug development
Created pipeline in Snakemake that maps out gene variants frequencies for discovery novel drug development. The pipeline pulled data from various databases using a REST API and webscraping techniques to combine the most important information in an Excel sheet. |
| 2019/1-2019/8 | Research Assistant Bioinformatics Brouns lab TU Delft
The Brouns lab is a wet lab research group specialized in CRISPR and microbe bacteriophage interactions. Genome assembly analysis and pipeline writing in the Linux cluster. Assisted with publication of 2 research papers. |

Education

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|----------------|--|
| 2019/9-2024/5 | Master's Computer Science TU Delft
Data Science Track: Focus on machine learning, algorithms, and bioinformatics. Avg. grade: 8
Master's Thesis Learning state machines from big log data S. Verwer, Algorithms
Using the power of C++ and PostgreSQL, I worked on a novel machine learning algorithm to learn state machines from big log data in a SQL database. Grade: 9 |
| 2014/9-2018/11 | Bachelor's Nanobiology TU Delft & Erasmus MC Rotterdam
Nanobiology contains a combination of physics, mathematics and biology. Avg. grade: 8
Bachelor's Thesis GWAS of autoimmunity in CRISPR Brouns lab & Utrecht TBB
Finding self-targeting events in a database of ~100.000 genomes using mostly Python and Bash. Grade: 8 |
| 2008-2014 | Secondary Education csg Bogerman Sneek
Gymnasium: Natuur & Techniek |

Extracurricular

2017/1-2017/11	TU Delft D:DREAM Team iGEM In a multidisciplinary team helped developing an on-site testing device for antibiotic resistant bacteria, using CRISPR-Cas13a. My role involved bioinformatics and taking the lead in building the website. Awarded with the Grand Prize (overgrad) and 8 special awards.
2015/9-2019/7	Teaching assistant Nanobiology programme Assisted with the courses: Electrical Instrumentation, Computational Science, and Bioinformatics.
2017/9-2018/8	Treasurer Stichting SurvivalStrijd Delft Managed finances of a 800 participant sports event that had doubled its budget.
2016/9-2017/8	Treasurer S.B.V. Slopend (Outdoor sports association) Implemented the use of an accounting program to manage the increasing number of members.
2015/9-2018/11	Honours Programma, additional activities for excelling students Attending seminars, Journal club, Interdisciplinary Innovation Lab: De gelukkige stad, Organizing the Nanobiology Summerschool for highschool pupils

Tech

Advanced:

Python: Django, DRF, Numpy, Scipy, Pandas, Snakemake, PyTorch

Web: React, VueJS, HTML/CSS, JavaScript, Cypress

Intermediate: Linux (Bash, AWK, Slurm, etc.), Docker/Podman, C/C++, R, SQL (PostgreSQL)

Familiar: AWS, Airtable, Java, Rust, Perl, Latex

Competencies

Software:	Version Control (Git), CI/CD, Software Testing, DevOps, Documentation, REST API, Webscraping
Computer Science:	Datascience, Algorithmics, Statistics, Machine Learning, State machines
Bioinformatics:	Genome Assembly, Variant Calling, Haplotype Phasing, Genomics, Genetics

Traits

Problem-solving, Results-driven, Collaborating, Precise, Trustworthy, Independent, Perseverant, Helpful.

Hobbys

Boardgames, Simrally, Programming, Reading, Piano, Survivalrun.

Languages

English:	Proficient
Dutch:	Native
Frisian:	Native

Publications

- Hielke Walinga, Robert Baumgartner, and Sicco Verwer. "Database-assisted automata learning". In: *LearnAut* (2024).
- Boris Estrada Bonilla, Ana Rita Costa, Daan F Van Den Berg, Teunke Van Rossum, Stefan Hagedoorn, Hielke Walinga, Minfeng Xiao, Wenchen Song, Pieter-Jan Haas, Franklin L Nobrega, et al. "Genomic characterization of four novel bacteriophages infecting the clinical pathogen *Klebsiella pneumoniae*". In: *DNA Research* 28.4 (2021), dsab013.
- Franklin L Nobrega, Hielke Walinga, Bas E Dutilh, and Stan JJ Brouns. "Prophages are associated with extensive CRISPR-Cas auto-immunity". In: *Nucleic acids research* 48.21 (2020), pp. 12074–12084.