Jonas **Falck**

BIOINFORMATICS

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"rtfm"

Education

Radboud University
Nijmegen, Netherlands

B.S. IN MEDICAL BIOLOGY — *2014*

- Sparked interest in molecular biology, omics and ngs technologies.
- Started to invest time in understanding the linux operating system.

Radboud University
Nijmegen, Netherlands

M.S. IN MEDICAL BIOLOGY — *2017*

- Developing a wide range of (bio)informatic and machine learning/data science skills in internships and extracurricular.

Skills

IT skills
- **r/bioconductor:** tidyverse, ggplot2, caret, grid, shiny
- **python:** pandas, matplotlib, scikit-learn, django, SQLAlchemy, flask, jinja2
- **productivity:** shell scripting, regex
- **database:** SQL, elasticsearch
- **writing:** LaTeX, markdown, html

Data science/Machine learning
- **supervised:** linear regression, knn, decision trees
- **unsupervised:** HCA, PCA, kmeans
- **statistics:** parametric and non-parametric methods
- **visualization:** publication ready plots, development of custom visualizations using grid

Software
- **operating systems:** linux, windows, macOS
- **version control:** git, gitlab
- **container and virtualization:** docker, virtualbox, qemu
- **IDE:** vscode, rstudio
- **web:** nginx, shiny
- **office solutions:** microsoft, google, libreOffice
- **graphics:** adobe photoshop, gimp

Languages
- **English:** fluent
- **Dutch:** fluent (nt2)
- **German:** native

Experience

Identification and ranking of p63 binding sites putatively involved in the etiology of non-syndromic cleft lip with or without cleft palate
Nijmegen, Netherlands

RADBOUD UNIVERSITY MEDICAL CENTER NIJMEGEN RUNMC, HUMAN GENETICS — *2017*

- In-silico prediction and in-vitro validation of clinically relevant transcription factor binding sites using an integrative multiomics approach.
- Took ownership of a wetwork research project and pioneered bioinformatical research in a solely wetwork focused lab, teaching myself the necessary bioinformatic skills.
- Development of a pipeline to integrate publicly available and in-house multi-omics data (Chip-seq, SNP, GWAS, conservation, linkage disequilibrium).
- Effective communication and presentation of bioinformatical methods and results to researches with no bioinformatical expertise.

CTCF-motif directionality controls CTCF-mediated chromatin interactions and correlates with topological domain structure
Nijmegen, Netherlands

CENTER FOR MOLECULAR AND BIOMOLECULAR INFORMATICS CMBI, COMPARATIVE GENOMICS — *Jan. 2016 - Jun. 2017*

- Drove and transformed a loosely defined, explorative research project into a hypothesis driven project resulting in a publication (see writing).
- Hypothesis generation by leveraging multiomics datasets describing different dimensionalities of the genome, ranging 1D (sequence), 2D (ChIP-Seq), and 3D data (ChIA-PET, HI-C).
- Hypothesis testing by applying parametric and non-parametric methods, randomization, as well as modeling of chromatin loops.
- Applying unsupervised machine learning techniques e.g. PCA, HCA as well as a multitude of visualizations for data exploration.

Logistics employee

Nijmegen, Netherlands

Quantore

Jan. 2016 - Jun. 2017

- Using warehouse management software to analyse and solve errorneaus orders in an independent manner or to communicate issues with the superiors.
- Being contact person for order pickers to resolve any problems occuring during the picking process or relaying them to superiors.
- Checking orders and ensuring every customer receives what is ordered.
- Assisting new employees finding their way in a warehouse environment.
- Picking orders for customers, moving stock inside the warehouse in a quick but safe manner.

Extracurricular Activity

Machine Learning provided by Stanford University through coursera

Grade: 87%

Participant, Syllabus

- My brother's phd defense about support vector machines inspired me to take this course.
- 11 week course covering go to methods applied in supervised and unsupervised learning, regularization and how to tackle problems like bias and overfitting.

Computing for Data Analysis provided by John Hopkins University through coursera

Grade: 97%

Participant

- This course covered the basics of data manipulation and visualization in R.

Web Technology

- Interest in web technology and how database driven and dynamic websites work, I basically learned how to setup, develop and maintain a full stack operation.
- Learned how to setup and admin headless linux systems.
- Learned how to use SQL-like databases and the NoSQL database elasticsearch for websites.
- Delved into python model-view-controller MVC frameworks django and flask.
- Learned how to speed up websites using caching technology like memcached and redis.

Writing

CTCF-motif directionality controls CTCT-mediated chromatin interactions and correlares with topological domain structure

google drive

Master Internship, Comparative Genomics, Center for Molecular and Biomolecular Informatics Nijmegen

Jan. 2015 - PRESENT

Identification, ranking and testing of p63 bindind sites putatively involved in the etiology of non-syndromic cleft lip with or without cleft palate

Nijmegen, Netherlands

Master Internship: Human Genetics, University Medical Center Nijmegen

Oct. 2012 - Jul. 2013

CTCF-mediated chromatin loops enclose inducible gene regulatory domains

bmcgenomics.biomedcentral.com

March 2016, BMC Genomics; 17:252.

pmid:27004515

Co-Author

- Publication is based on my research internship.
- I participated in the discussion around this paper and did some proofreading.