# Jonas **Falck**

BIOINFORMATICS - DATA ANALYSIS

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## Skills

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|---|---|
| **IT skills** | • **r/bioconductor:** tidyverse, biomaRt, ggplot2, caret, data.table, grid, shiny<br>• **python:** pandas, matplotlib, scikit-learn, django, SQLAlchemy, flask, jinja2<br>• **productivity:** shell scripting, regex<br>• **database:** SQL, elasticsearch<br>• **operating systems:** linux, windows, macOS<br>• **version control:** git<br>• **container and virtualization:** docker, virtualbox, qemu<br>• **webserver:** nginx, shiny |
| **Data science/Machine learning** | • **supervised:** linear regression, knn, decision trees<br>• **unsupervised:** HCA, PCA, kmeans<br>• **statistics:** parametric and non-parametric methods<br>• **visualization:** publication ready plots, development of custom visualizations using grid<br>• **datatypes:** ChIP-Seq, |
| **Languages** | • **English:** fluent<br>• **Dutch:** fluent (nt2)<br>• **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    *2015-2016*

- 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), to generate reproducible results.
- 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    *2016*

- 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

*Beuningen, Netherlands*

QUANTORE    *2018 - now*

- Using warehouse management software to analyse errorneaus orders and solve problems in an independent manner or to communicate issues with the superiors.
- Troubleshooting and providing technical support to co-workers to resolve issues during the picking process or escalating them to superiors.
- Ensuring cutomer satisfaction by quiality controlling orders.
- Teaching new employees finding their way around in a warehouse environment.

## Extracurricular Activity

### Machine Learning

*Grade: 87%*

STANFORD UNIVERSITY, ONLINE

- Not understanding a thing during 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.
- Certificate of accomplishment: tinyurl.com/4ww44jm7

### *Computing for Data Analysis*

JOHN HOPKINS UNIVERSITY, ONLINE

*Grade: 97%*

- This course covered the basics of data analysis and visualization in R in a medical context.
- Certificate of accomplishment: tinyurl.com/ym9rd5dc

### Full stack web development

SELF-TOUGHT

*2012-2015*

- Setup and adminstration of headless linux systems.
- Applied SQL-like databases and the NoSQL database elasticsearch in a website environment.
- Used python model-view-controller frameworks django and flask + SQLAlchemy.
- Applied caching technology like memcached and redis to speed up website performance.
- Learned html, css, templating and javascript for front-end use.

## Education

### Radboud University

M.S. IN MEDICAL BIOLOGY

*Nijmegen, Netherlands*

*2015 -*

### Radboud University

B.S. IN MEDICAL BIOLOGY

*Nijmegen, Netherlands*

*2012 - 2015*

## Writing

### CTCF-mediated chromatin loops enclose inducible gene regulatory domains

MARTIN OTI, JONAS FALCK, MARTIJN A. HUYNEN & HUIQING ZHOU

*BMC Genomics*

*March 2016, BMC Genomics; 17:252*

- Available here: https://doi.org/f8vngs

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

COMPARATIVE GENOMICS, CENTER FOR MOLECULAR AND BIOMOLECULAR INFORMATICS NIJMEGEN

*Master Internship*

*2016*

- Available here: https://tinyurl.com/2p9hekax

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

HUMAN GENETICS, UNIVERSITY MEDICAL CENTER NIJMEGEN

*Master Internship*

*2016*

- Available here: