Christian H. **Holland**

PhD student

BioQuant, Heidelberg University

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Data scientist tackling biomedical challenges

Education

Bielefeld University — *Bielefeld, Germany*

Bachelor of Science - Molecular Biotechnology — *2011-14*

- Thesis: Effect of overexpression of xanA on the growth and xanthan production of Xanthomonas campestris pv. Campestris in the laboratory and in the model

Bielefeld University — *Bielefeld, Germany*

Master of Science - Genome Based Systems Biology — *2014-17*

- Thesis: Coupling of Metabolism and Gene Regulation to identify Gene Targets in Living Cells

RWTH Aachen — *Aachen, Germany*

PhD — *2017-19*

- From gene expression to pathway and transcription factor activities to acquire functional and mechanistic insight into chronic liver diseases

Heidelberg University — *Heidelberg, Germany*

Continuation of PhD — *2019-now*

- From gene expression to pathway and transcription factor activities to acquire functional and mechanistic insight into chronic liver diseases

Working Experience

Reseach Center Jülich — *Jülich, Germany*

Internship — *2015 (3 month)*

- Studying Escherichia coli metabolism with focus on the uncertainties of the biomass equation

Alacris Theranostics GmbH — *Berlin, Germany*

Internship — *2016 (3 month)*

- Application of a mechanistic model and an artificial neural network for simulation and parameter optimization of the drug response model in the context of personalized medicine

Insilico Biotechnology AG — *Stuttgart, Germany*

Master student — *2016-2017 (9 month)*

- Coupling of Metabolism and Gene Regulation to identify Gene Targets in Living Cells

Teaching Experience

Bielefeld University — *Bielefeld, Germany*

Student assistant job - Mathematics for Biologists — *2013-15*

Bielefeld University — *Bielefeld, Germany*

Student assistant job - Statistics/Informatics for Biologists — *2013-15*

Skills

Programming

R, Python, Matlab, Bash

Packages

tidyverse, shiny, bookdown, pkgdown, testthat, pandas, numpy

Tools

Git, Travis CI, LaTeX

Conferences Attended

SBMC *Bremen, Germany*

Talk: Unveiling of conserved transcriptomics perturbation responses in mice and human *2018*

RECOMB/ISCB *New York City, USA*

Poster: Unveiling of conserved transcriptomics perturbation responses in mice and human *2018*

ISMB/ECCB *Basel, Switzerland*

Poster: Robustness and applicability of functional genomic tools on scRNA-seq data *2019*

Selected Publications

1. **Christian H. Holland**, J Tanevski, J Perales-Patón, J Gleixner, MP Kumar, E Mereu, BA Joughin, O Stegle, DA Lauffenburger, H Heyn, B Szalai, and J Saez-Rodriguez (Feb. 2020). Robustness and applicability of transcription factor and pathway analysis tools on single-cell RNA-seq data. *Genome Biology* **21**(1).
2. Tajti, F, C Kuppe, A Antoranz, MM Ibrahim, H Kim, F Ceccarelli, **Christian H. Holland**, H Olauson, J Floege, LG Alexopoulos, R Kramann, and J Saez-Rodriguez (Feb. 2020). A Functional Landscape of CKD Entities From Public Transcriptomic Data. *Kidney International Reports* **5**(2), 211–224.
3. Ghallab, A, M Myllys, **Christian H. Holland**, A Zaza, W Murad, R Hassan, YA Ahmed, T Abbas, EA Abdelrahim, KM Schneider, M Matz-Soja, J Reinders, R Gebhardt, ML Berres, M Hatting, D Drasdo, J Saez-Rodriguez, C Trautwein, and JG Hengstler (Dec. 2019). Influence of Liver Fibrosis on Lobular Zonation. *Cells* **8**(12), 1556.
4. Szalai, B, V Subramanian, **Christian H. Holland**, R Alföldi, LG Puskás, and J Saez-Rodriguez (Sept. 2019). Signatures of cell death and proliferation in perturbation transcriptomics data—from confounding factor to effective prediction. *Nucleic Acids Research* **47**(19), 10010–10026.
5. **Christian H. Holland**, B Szalai, and J Saez-Rodriguez (June 2020). Transfer of regulatory knowledge from human to mouse for functional genomics analysis. *Biochimica et Biophysica Acta (BBA) - Gene Regulatory Mechanisms* **1863**(6), 194431.
6. Garcia-Alonso, L, **Christian H. Holland**, MM Ibrahim, D Turei, and J Saez-Rodriguez (July 2019). Benchmark and integration of resources for the estimation of human transcription factor activities. *Genome Research* **29**(8), 1363–1375.
7. Flores, ROR, JD Lanzer, **Christian H. Holland**, F Leuschner, P Most, JH Schultz, RT Levinson, and J Saez-Rodriguez (May 2020). A Consensus Transcriptional Landscape of Human End-Stage Heart Failure. *medRxiv*.