

Christian H. Holland

PHD STUDENT

BioQuant, Heidelberg University

☎ +49 (0) 176 4344 9810 | ✉ cholland2408@gmail.com | ☎ 0000-0002-3060-5786 | 🌐 [christianholland](https://christianholland.com) | 🐦 [mr_netherlands](https://twitter.com/mr_netherlands)

Data scientist tackling biomedical challenges

Education

Heidelberg University

Heidelberg, Germany

CONTINUATION OF PHD IN COMPUTATIONAL BIOMEDICINE

2019-now

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

RWTH Aachen

Aachen, Germany

PHD IN COMPUTATIONAL BIOMEDICINE

2017-19

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

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

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

Working Experience

Roche pRED PS BEDA

Basel Switzerland

ROCHE INTERNSHIPS FOR SCIENTIFIC EXCHANGE

2021 (6 month)

- Multi-omics guided construction of cell-type specific gene regulatory networks

Insilico Biotechnology AG

Stuttgart, Germany

MASTER STUDENT

2016-2017 (9 month)

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

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

Research Center Jülich

Jülich, Germany

INTERNSHIP

2015 (3 month)

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

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 (EXPERT), PYTHON (PROFICIENT), BASH (PROFICIENT), MATLAB (NOVICE)

Packages

TIDYVERSE, SHINY, RMARKDOWN, BOOKDOWN, PKGDOWN, TESTTHAT, PANDAS, NUMPY

Tools

GIT, CI (TRAVIS OR GHA), LATEX

Software development

dorothea

Available since Bioc 3.11

BIOCONDUCTOR PACKAGE

- Tool to infer transcription factor activities from gene expression data (Lead developer)

progeny

Available since Bioc 3.6

BIOCONDUCTOR PACKAGE

- Tool to infer pathway activities from gene expression data (Contributor)

Conferences Attended

EuroBioc

Online conference

TALK: ESTIMATION OF TRANSCRIPTION FACTOR AND PATHWAY ACTIVITIES FROM BULK AND SINGLE-CELL TRANSCRIPTOMICS

2020

DATA WITH DOROTHEA AND PROGENY

ISMB/ECCB

Basel, Switzerland

POSTER: ROBUSTNESS AND APPLICABILITY OF FUNCTIONAL GENOMIC TOOLS ON scRNA-SEQ DATA

2019

RECOMB/ISCB

New York City, USA

POSTER: UNVEILING OF CONSERVED TRANSCRIPTOMICS PERTURBATION RESPONSES IN MICE AND HUMAN

2018

SBMC

Bremen, Germany

TALK: UNVEILING OF CONSERVED TRANSCRIPTOMICS PERTURBATION RESPONSES IN MICE AND HUMAN

2018

Selected Publications

1. Mohs, A., Otto, T., Schneider, K. M., Peltzer, M., Boekschoten, M., Christian H. Holland, Hudert, C. A., Kalveram, L., Wiegand, S., Saez-Rodriguez, J., Longerich, T., Hengstler, J. G., & Trautwein, C. (2021). Hepatocyte-specific NRF2 activation controls fibrogenesis and carcinogenesis in steatohepatitis. *Journal of Hepatology*, 74(3), 638–648. <https://doi.org/10.1016/j.jhep.2020.09.037>
2. Christian H. Holland, Tanevski, J., Perales-Patón, J., Gleixner, J., Kumar, M. P., Mereu, E., Joughin, B. A., Stegle, O., Lauffenburger, D. A., Heyn, H., Szalai, B., & Saez-Rodriguez, J. (2020). Robustness and applicability of transcription factor and pathway analysis tools on single-cell RNA-seq data. *Genome Biology*, 21(1). <https://doi.org/10.1186/s13059-020-1949-z>
3. Christian H. Holland, Szalai, B., & Saez-Rodriguez, J. (2020). Transfer of regulatory knowledge from human to mouse for functional genomics analysis. *Biochimica Et Biophysica Acta (BBA) - Gene Regulatory Mechanisms*, 1863(6), 194431. <https://doi.org/10.1016/j.bbagr.2019.194431>
4. Flores, R. O. R., Lanzer, J. D., Christian H. Holland, Leuschner, F., Most, P., Schultz, J.-H., Levinson, R. T., & Saez-Rodriguez, J. (2020). A consensus transcriptional landscape of human end-stage heart failure. *medRxiv*. <https://doi.org/10.1101/2020.05.23.20110858>
5. Ghallab, A., Myllys, M., Christian H. Holland, Zaza, A., Murad, W., Hassan, R., Ahmed, Y. A., Abbas, T., Abdelrahim, E. A., Schneider, K. M., Matz-Soja, M., Reinders, J., Gebhardt, R., Berres, M.-L., Hatting, M., Drasdo, D., Saez-Rodriguez, J., Trautwein, C., & Hengstler, J. G. (2019). Influence of liver fibrosis on lobular zonation. *Cells*, 8(12), 1556. <https://doi.org/10.3390/cells8121556>
6. Szalai, B., Subramanian, V., Christian H. Holland, Alföldi, R., Puskás, L. G., & Saez-Rodriguez, J. (2019). Signatures of cell death and proliferation in perturbation transcriptomics data from confounding factor to effective prediction. *Nucleic Acids Research*, 47(19), 10010–10026. <https://doi.org/10.1093/nar/gkz805>
7. Garcia-Alonso, L., Christian H. Holland, Ibrahim, M. M., Turei, D., & Saez-Rodriguez, J. (2019). Benchmark and integration of resources for the estimation of human transcription factor activities. *Genome Research*, 29(8), 1363–1375. <https://doi.org/10.1101/gr.240663.118>