

Thies Gehrmanⁿ PhD Curriculum Vitæ

(email): thiesgehrmann@gmail.com
(https): thiesgehrmann.github.io
(tel NL): +31 (0)640 175 860

D.O.B. April 8th 1989
Nationality: German

Private address:
Morskade 14
2332 GB Leiden
The Netherlands

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Personal profile

Currently, I am a Postdoc in the department of Molecular Epidemiology at the Leiden University Medical Centre, working on translational research of healthy ageing. Bioinformatics is a constantly developing field, with continuously evolving measurements that presents a splendid opportunity to develop and apply novel methods. It also requires the practitioner to develop multidisciplinary skills from the statistical, computational and biological domains. I am excited to be part of this field, where my knowledge and competences are constantly challenged, humbled and developed.

Employment

Jan. 2018 - Present	Postdoc at Department of Molecular Epidemiology, Leiden University Medical Centre <i>Bioinformatician on healthy ageing, together with Max Plank Institute of Biological Ageing.</i>
Nov. 2016 - 2017	Postdoc at KNAW/Westerdijk Institute of Fungal Biodiversity <i>Embedded bioinformatician.</i>
Nov. 2012 - 2016	PhD Candidate <i>Conducted research and performed teaching.</i>

Education

2012-2018	Pattern Recognition and Bioinformatics group, TU Delft, The Netherlands <i>PhD in Bioinformatics.</i> <i>Bioinformatic Analysis of Genetic and Transcriptomic Variation in Fungi.</i>
2010-2012	Leiden University, Leiden, The Netherlands (In cooperation with TU Delft) <i>MSc Computer Science Track Bioinformatics.</i> <i>Thesis on protein function prediction using Conditional Random Fields.</i>
2008-2010	Heriot Watt University, Edinburgh, Scotland <i>BSc (Ord) Computer Science</i> <i>Graduated with distinction.</i>

Skills

Technical Skills	Python, Scala, C/C++, Java, Shell, Matlab, R Experience with schedulers (SLURM, PDB) and version control software, (SVN, Git). SQL, XML (and related technologies), L ^A T _E X. Pipeline development and management (Snakemake, Anaconda, Jupyter Notebook). Experienced with Unix environments (primarily Linux). Machine learning, statistical genetics, comparative genomics, transcriptomic and metabolomic analysis and algorithm development.
Languages	Fluent in Norwegian, German and English. High level Dutch. Beginners French.

Referees

Upon request | Contact Thies for referee contact details.

Teaching

MSc Courses

Functional Genomics and Systems Biology
Lecturer and teaching assistant. Fall 2014, 2015, and 2016 at TU Delft

Computational Molecular Biology
Teaching assistant. Spring 2012 at Leiden University

BSc Courses

Life Science and Technology Bioinformatics
Teaching assistant. Spring 2016 at TU Delft.

Clinical Biotechnology: Bioinformatics
Teaching assistant. Fall 2018, 2019 at TU Delft.

Molecular Data Science
Teaching assistant. Spring 2018 at Leiden University Medical Center

Genome Scale Data Analysis
Lecturer and teaching assistant. Fall 2014 at TU Delft

External Courses

Quantitative biology summer school
Lectured on computational aspects of synteny and alternative splicing in fungi. Summer 2015 at Utrecht University.

Student Supervision

Myrthe de Haan

B.Sc student 2019-2020
Using the drug-gene interactome to predict intervention-mimicing drugs.

Jet Beekwilder

B.Sc Student 2017-2018
Comparison of DNA extraction methods from fungi for Nanopore sequencing.

André Vollering

M.Sc Student 2014-2015
Heterosis: Finding Associated Genomic Regions.

Valerie Pourquie

B.Sc Student 2015
Conservation of polarization proteins in yeast and fungi.

Dimitris Palachanis

M.Sc Student 2013-2014
Using the Multiple Instance Learning framework to address differential regulation.

Other activities/skills/information

Awards

Nature Ageing, Rejuvenation and Health Conference 2019, 'Best Poster' award.
ECCB 2016 Student Symposium, 'Best Oral Presentation' award.
Benelux Bioinformatics Conference 2015 Student Symposium,, 'Best Oral presentation'.
TU Delft Graduate School, 'Best poster presentation' award 2013.
Scott Logic Computer Science Prize 2010.

Reviewing

Nature Scientific Reports (2019)
FEMS Yeast Research (2018)
Nucleic Acid Research (2016)

Volunteering

International Student Network (Leiden) 2013-2016. Stage construction and management.
Dutch Red Cross (Den Haag) 2014-2015. First Aid (EHBO) at events and refugee centers.

Publications

Journal publications

- [1] Vladimiro Guarnaccia, Thies Gehrman, Geraldo J. Silvia-Junior, Paul H. Fourie, Sajeet Haridas, Duong Vu, Joseph Spatafora, Francis M Martin, Vincent Robert, Igor V. Grigoriev, Johannes Z. Groenewald, and Pedro W. Crous. *Phyllosticta citricarpa* and sister species of global importance to citrus. *Molecular Plant Pathology*, 2019
- [2] D Vu, Marizeth Groenewald, M De Vries, T Gehrman, B Stielow, U Eberhardt, A Al-Hatmi, JZ Groenewald, G Cardinali, J Houburken, et al. Large-scale generation and analysis of filamentous fungal dna barcodes boosts coverage for kingdom fungi and reveals thresholds for fungal species and higher taxon delimitation. *Studies in mycology*, 92:135–154, 2019
- [3] Eveline T Diepeveen, Thies Gehrman, Valérie Pourquié, Thomas Abeel, and Liedewij Laan. Patterns of conservation and diversification in the fungal polarization network. *Genome biology and evolution*, 10(7):1765–1782, 2018
- [4] Thies Gehrman, Jordi F Pelkmans, Robin A Ohm, Aurin M Vos, Anton SM Sonnenberg, Johan JP Baars, Han AB Wösten, Marcel JT Reinders, and Thomas Abeel. Nucleus-specific expression in the multinuclear mushroom-forming fungus *agaricus bisporus* reveals different nuclear regulatory programs. *Proceedings of the National Academy of Sciences*, 115(17):4429–4434, 2018
- [5] Francine Boonekamp, Sofia Dashko, Marcel Van den Broek, Thies Gehrman, Jean-Marc Daran, and Pascale Daran-Lapujade. The genetic makeup and expression of the glycolytic and fermentative pathways are highly conserved within the *saccharomyces* genus. *Frontiers in genetics*, 9:504, 2018
- [6] Abigail L Manson, Thomas Abeel, James E Galagan, Jagadish Chandrabose Sundaramurthi, Alex Salazar, Thies Gehrman, Siva Kumar Shanmugam, Kannan Palaniyandi, Sujatha Narayanan, Soumya Swaminathan, et al. *Mycobacterium tuberculosis* whole genome sequences from southern india suggest novel resistance mechanisms and the need for region-specific diagnostics. *Clinical Infectious Diseases*, 64(11):1494–1501, 2017
- [7] Jordi F Pelkmans, Mohini B Patil, Thies Gehrman, Marcel JT Reinders, Han AB Wösten, and Luis G Lugones. Transcription factors of *schizophyllum commune* involved in mushroom formation and modulation of vegetative growth. *Scientific reports*, 7(1):310, 2017
- [8] Thies Gehrman, Jordi F Pelkmans, Luis G Lugones, Han AB Wösten, Thomas Abeel, and Marcel JT Reinders. Variants in rna-seq data show a continued mutation rate during strain preservation of *schizophyllum commune*. *BioRxiv*, page 201012, 2017
- [9] Jordi F Pelkmans, Aurin M Vos, Karin Scholtmeijer, Ed Hendrix, Johan JP Baars, Thies Gehrman, Marcel JT Reinders, Luis G Lugones, and Han AB Wösten. The transcriptional regulator *c2h2* accelerates mushroom formation in *agaricus bisporus*. *Applied microbiology and biotechnology*, 100(16):7151–7159, 2016
- [10] Thies Gehrman and Marcel JT Reinders. Proteny: discovering and visualizing statistically significant syntenic clusters at the proteome level. *Bioinformatics*, 31(21):3437–3444, 2015
- [11] Thies Gehrman, Marco Loog, Marcel JT Reinders, and Dick de Ridder. Conditional random fields for protein function prediction. In *IAPR International Conference on Pattern Recognition in Bioinformatics*, pages 184–195. Springer, Berlin, Heidelberg, 2013

Conference publications

Under Review

- [12] Design and experimental evaluation of a minimal, innocuous watermarking strategy to distinguish near-identical DNA and RNA sequences. (*Under review in ACS Synthetic Biology*)

In Progress

- [13] Lifestyle Intervention sensitizes the pro-homeostasis blood transcriptomic response to nutrient intake (*In progress*)
- [14] Characterization of genetic variants in RAS/MEK/ERK Pathway in exceptionally long-lived Dutch families (*In progress*)
- [15] Archana Tare, Seungjin Ryu, Cristina Giuliani, Thies Gehrman, Gil Atzman, Nir Barzilai, Daniela Mari, Giuseppe Passarino, Claudio Franceschi, Eline P Slagboom, Yousin Suh. Genetic landscape of GDF11 and MSTN in human longevity revealed by high-throughput sequencing in a multi-cohort study (*In progress*)
- [16] Antonis Somarakis, Manolis Fragkiadakis, Marios Kefalas, Stelios Paraschiakos, Michaelis Vrachasotakis, Thies Gehrman. On the global prediction of land grabbing risk. (*In progress*)
- [17] Annick Lang, Thies Gehrman, Nils Cronberg. Genetic diversity in bryophyte population with facultative nannandry (*In progress*)
- [18] Lizel Mostert, Thies Gehrman, Duong Vu, Vincent Robert. Genomic analysis of the Grape vine pathogen *Phaeoacremonium* in South African vineyards. (*In progress*)

Conference Talks

2019

LANDac 2019

Uniting Global and Hyper-Local Data for Land: The use of global and local data for land grabbing risk prediction

European Dialogue on Internet Governance, EuroDIG 2019

Digital cooperation in action A collaborative case study: Predicting Land Grabbing

BioSB 2019

Nutrient challenge exposes transcriptomic shift by lifestyle intervention in healthy participants

2016

ECCB Student Symposium 2016

Karyotype specific expression in Agaricus bisporus

2015

BBC Student Symposium 2015

Alternative Splicing in mushrooms from RNA-Seq

2013

Pattern Recognition in Bioinformatics 2013

Conditional Random Fields for protein function prediction