

Personalia

Name: **Frans Johan Rodenburg**
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E-mail address: [An email address on which I can be reached that looks (somewhat) professional]
Date of birth and birth place: [date], [place], The Netherlands
Nationality: Dutch
Driver's License: ...
Languages: Dutch (native), English (full professional working proficiency), Japanese (limited working proficiency)

Education

2017–2020 **Doctoral Education in Life Science & Technology (Applied Statistics)**
Location: Tokyo Institute of Technology
Subject: Statistical inference and deep learning with gel-based proteomics
Status: Doctor of Science degree obtained in September 2020

2014–2017 **Master Education in Mathematics**
Location: Leiden University
Subject: Statistical science for the life and behavioural sciences
Status: MSc degree obtained in March 2017

2014–2017 **Master Education in Biology**
Location: Leiden University
Subject: Animal biology and disease models
Status: MSc degree obtained in June 2017

2015–2016 **International Genetically Engineered Machine (iGEM) 2016**
Location: Leiden University
Subject: Extracurricular program for bachelor and master students
Role: Experimental design, laboratory work, statistical analysis, bioreactor design.
Status: Completed and bronze medal awarded in 2016 (18 EC)

2014–2015 **Leiden Leadership Programme**
Location: Leiden University
Subject: Extracurricular program for master students
Status: Honours certificate obtained in July 2015 (15 EC)

2012–2014 **Honours College**
Location: Leiden University
Subject: Extracurricular program for bachelor students
Status: Honours certificate obtained in July 2014 (30 EC)

2011–2014 **Bachelor Education in Biology**
Location: Leiden University (major), TU Delft (minor)
Major: Molecular and Cellular Biology
Minor: Advanced Life Sciences & Technology
Status: BSc degree obtained in July 2014 (180 ECTS)

2006–2010 **High School Education**
Location: Pontes Het Goese Lyceum
Subject: VWO level life science and natural sciences
Status: Secondary school degree obtained in June 2010

Work Experience

- 2020–2021 (present) **Statistics Teacher at Leiden University**
Employer: Leiden University, Institute of Biology Leiden
Function: Teacher
Description: I develop lectures, videos, and other learning material about statistics, machine learning and deep learning, primarily for students of the life sciences. Feel free to have a look at some of my material here: <https://www.youtube.com/channel/UCAI9XVDrTRsT2cidFLaTnBw>
Reference: Prof.dr. J.H. de Winde ([email address])
- 2018–2020 **Teaching and Research Assistant at Tokyo Institute of Technology**
Employer: Tokyo Institute of Technology, Department of Life Science & Technology
Function: Teaching and research assistant
Description: Writing tutorials, scripts, and example analyses. In addition, I am writing a white paper to document all statistical methods commonly used during my PhD for the analysis of gel-based proteomics. I also held a short course about this to life science & technology students.
Reference: Prof. N. Hayashi ([email address])
- 2017–2021 (present) **Statistical Consultancy & Entrepreneurship**
Employer: Self employed
Function: Statistical consultant, full stack developer
Description: I provided freelance consultancy about inventory optimization using predictive models. Over time this grew into the development of a three-man company that offers inventory optimization, statistical analysis and data visualization through a dashboard app.
Reference: Name 1 ([email address 1])
 Name 2 ([email address 2])
- 2015–2017 **Student Assistant at Leiden University**
Employer: Leiden University, Mathematical Institute
Function: Student Assistant
Description: We improved the integration of statistics in the curriculum of the biology bachelor education at the IBL by providing short workshops during other courses. In addition, I held lectures provided statistical consultancy to bachelor, master and occasionally PhD students.
Time: 8-hour contract (32 hours per month)
Reference: Dr. H.G.J. van Mil ([email address])
- 2008–2011 **Summer Employee at Total Refinery**
Employer: Total Refinery (now: Zeeland Refinery)
Function: Temporary employee
Work description: Technical administrative assignments, mostly in Excel.
Time: Full time, 2–3 weeks during the summer break
- 2007–2009 **Baker at Jumbo Goes**
Employer: Jumbo Supermarket, Goes
Function: Employee at the bakery section
Work description: Baking bread and pastries, managing inventory and cleaning.

Voluntary Work

- 2018 (April–September) **Supervising a Bachelor Research Internship**
Function: Primary supervisor
Work description: Supervising the research internship of overseas student [name] about implementing variational autoencoders (a type of neural network) to gel-based proteomics. I aided with conceptualization, programming in R, setting up experiments and writing his thesis. His project was well-received by his and our department.
- 2016–2020 (present) **Writing Free Textbooks**
Function: Author
Work description: Writing and maintaining 3 free textbooks on biostatistics, aimed at life scientists. A short syllabus introducing the use of statistical software (R) is also included. As of writing this resume, the first two books are used by biology bachelor and master students, as well as biopharmaceutical science bachelor students.

Recent Publications

- 2021 **Subject:** **Approximating Mutant Skeletal Deformities in Zebrafish with CRISPR/Cas9**
 Title: Lrp5 Mutant and Crispant Zebrafish Faithfully Model Human Osteoporosis, Establishing the Zebrafish as a Platform for CRISPR-Based Functional Screening of Osteoporosis Candidate Genes
 Authors: Bek, J.W., Shochat C., De Clercq, A., De Saffel, H., Boel, A., Metz, J., Rodenburg, F., Karasik, D., Willaert, A., Coucke, P.J.
 Journal: J Bone Miner Res. <https://doi.org/10.1002/jbmr.4327>
 Contribution: Formal analysis, writing (initial draft), writing (final draft)
- 2019 **Subject:** **Finding Biomarkers of Sepsis Severity through Analysis of Gel-Based Proteomics**
 Title: Multiple biomarkers of sepsis identified by novel time-lapse proteomics of patient serum
 Authors: Hayashi N., Yamaguchi S., Rodenburg F., Wong S.Y., Ujimoto K., Miki T., Iba T.
 Journal: PLOS ONE 14(9): e0222403.
 Contribution: Formal analysis, writing (final draft)
- 2019 **Subject:** **Deep Learning with Mobile Health Data**
 Title: Improving RNN Performance by Modelling Informative Missingness with Combined Indicators
 Authors: Rodenburg, F.J.; Sawada, Y.; Hayashi, N.
 Journal: MDPI *Applied Sciences* **2019**, *9*, 1623. (Deep Learning and Big Data in Healthcare)
 Contribution: Conceptualization, experimentation, writing (initial draft), writing (final draft)

Internships

- 2015–2017 **Master Research Internship at the Leiden University Medical Center**
 Supervisor: Dr. B. Mertens
 Research area: Bayesian statistics, proteomics, high dimensional data analysis
 Title: A comparison of methods for the construction of conditional independence networks
 Techniques: Penalized covariance matrix inversion, Bayesian inference, programming in R
- 2014 (6 months) **Bachelor research internship at the Leiden University Medical Center**
 Supervisors: Prof. Dr. P. Slagboom, Dr. J. Deelen
 Research area: Aging, molecular epidemiology, medical statistics
 Title: The effects of a 3-month caloric restriction intervention on gene expression of the mTOR pathway, the Growing Old Together study
 Techniques: RT-qPCR, statistical analysis (linear mixed models)
- 2013 (2 months) **Voluntary research internship at the Leiden University Medical Center (LUMC)**
 Supervisors: Prof. Dr. P. Slagboom, Dr. J. Deelen
 Research area: Aging, Molecular Epidemiology
 Study: The effects of a 3-month caloric restriction intervention on body composition
 Techniques: Bioelectrical impedance analysis, statistical analysis (linear mixed models)

Computer knowledge

- General: Extensive knowledge of computer hardware and software
 Programming: Primarily: R, R markdown, LaTeX, Tensorflow, Keras, Shiny, CSS, HTML

Side activities

- General: Judo (shodan), powerlifting, drawing & illustrating
 2017–2020 (present) Active member of an online statistics Q&A (<https://stats.stackexchange.com/users/176202>)
 2013–2015 Mentoring new students during the introductory week *EL-CID* at Leiden University
 2011–2013 Committee work for the study association Leidse Biologen Club