

Dr. Dmitriy Drichel
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Summary

Freelance data scientist with an interdisciplinary background in physics, bioinformatics, genomics, and epidemiology. Focused on bioinformatics with applications in biotech, life sciences, and pharmaceutical industries. Over ten years of experience analyzing and integrating -omics data as well as developing, testing, and deploying software applications and analysis pipelines.

Key Skills and Interests

- Machine learning, statistics and big data analytics
- Genomics, transcriptomics, epigenomics, flow cytometry
- Cloud computing, AWS, docker
- Software development (Python, C/C++, R, Perl, awk, bash)
- System integration, analysis pipelines
- Project management, project documentation
- Exploratory and predictive analytics, modelling and simulation
- High-performance computing, parallelization
- Communicating results, reporting and visualization

Work Experience

Feb 2020-Jun 2021 Freelance Bioinformatician/-statistician at Boehringer Ingelheim (BI-X)

Development and implementation of a genomics/transcriptomics analysis pipeline.

Data acquisition, data engineering, data analysis, software development.

- python, R, high-performance computing, AWS, docker
- biomolecular data, sequence analysis, high-dimensional data
- genomics, transcriptomics, epigenomics
- Oxford Nanopore, PacBio, Illumina NGS, microarray technology
- development of novel algorithms and statistical methodologies
- integration of complex data sets from various sources
- visualization, presentation and reporting
- application and product development, stakeholder management

Feb-Nov 2019 Freelance Application Developer at Miltenyi Biotec

Development of python applications for flow cytometry data acquisition and analysis.

Engineering of custom applications for embedded systems.

- python, pandas, scikit-learn, jupyter
- unsupervised machine learning, clustering
- project management, documentation: scrum, agile, jira, confluence
- version control systems: git, svn, jenkins

Jan-May 2019 Freelance Data Scientist at Jahnes GmbH.

Implementation of a machine learning model in a leading German bank.

Data extraction, data engineering, exploratory and descriptive analysis, visualization.

- python, pandas, scikit-learn, matplotlib, jupyter, SQL
- risk analysis, consumer loans

- 2015-2020 Cologne Center for Genomics (CCG), University of Cologne
Development of analysis software for big genomic data sets. Development of novel statistical methodology and algorithms, management of small teams.
- C/C++, python, Perl, R
 - epidemiological studies, scientific writing
 - big data analysis, high-performance computing
- 2010-2015 German Center for Neurodegenerative Diseases (DZNE), Bonn
Research associate, PhD student. Development of application software for analysis of biological data. Development and evaluation of novel statistical methodology, high-performance computing.
- C/C++, python, OpenMP
 - Evaluation and optimization of data handling pipelines
 - Large-scale simulations of biological data sets
- 2006-2010 Institute for Theoretical Physics, Leibniz University Hannover and
Institute for Physiology, Hannover Medical School
Teaching assistant

Academic Education

- 2016 PhD in Epidemiology at the University Clinic Bonn, PhD thesis:
Association Analysis of Rare Genomic Variants
- 2003-2010 Studies of physics (focus on mathematical and statistical physics) at the Leibniz University of Hannover, diploma thesis at the Institute for Theoretical Physics (ITP), title:
Logarithmic Conformal Field Theory with Supersymmetry
- 2007-2008 Studies of mathematics and physics at the National University of Ireland, Maynooth and Trinity College, Dublin

Personal Details

- 01.09.1982 Born in Leningrad, Russia
Languages: German, English, Russian
Nationality: German

Top 5 Publications

- [1] George Kanounji, Michael Nothnagel, Tim Becker, **Dmitriy Drichel** “The exhaustive genomic scan approach, with an application to rare-variant association analysis” *European Journal of Human Genetics*. 2020 May 15:1-9.
- [2] Stefanie Heilmann, **Dmitriy Drichel**, Jordi Clarimon, Victoria Fernández, André Lacour, Holger Wagner, Mathias Thelen, Isabel Hernández, Juan Fortea, Montserrat Alegret, et al. “PLD3 in non-familial Alzheimer’s disease”. In: *Nature* 520.7545 (2015), E3–E5.
- [3] Isabel Spier, **Dmitriy Drichel**, Martin Kerick, Jutta Kirfel, Sukanya Horpaopan, Andreas Laner, Stefanie Holzapfel, Sophia Peters, Ronja Adam, Bixiao Zhao, et al. “Low-level APC mutational mosaicism is the underlying cause in a substantial fraction of unexplained colorectal adenomatous polyposis cases”. In: *Journal of medical genetics* 53.3 (2016), pp. 172–1.
- [4] **Dmitriy Drichel**, Christine Herold, Andre Lacour, Alfredo Ramirez, Frank Jessen, Wolfgang Maier, Markus M. Noethen, Markus Leber, Tatsiana Vaitiakhovich, and Tim Becker. “Rare Variant Testing of Imputed Data: An Analysis Pipeline Typified.” In: *Hum Hered* 78.3-4 (Dec. 2014).
- [5] **Dmitriy Drichel** and Michael Flohr. “Correlation Functions in N= 3 Superconformal Theory”. In: *arXiv preprint arXiv:1006.3346* (2010).