Dr. Paul Schmidt

Data Scientist / Biostatistician

Hamburg, Germany

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Professional experience

BioMath - Applied Statistics and Informatics in Life Sciences

Rostock & Hamburg, Germany

Data scientist / General Manager

Since Jan 2019

- Various statistical analyses from raw data to final report, including conceptualization of research approach; data acquisition, cleansing, and integration; data analysis and modeling; interpretation, presentation, and communication of results.
- Recent projects: Time series and correlation analysis of air parameters; Comparison of agricultural treatments; Co-creation and evaluation of monitoring surveys; Epidemiological risk assessments using meta-analyses; Evaluation of geographical distributions using GIS data.
- Implement new / streamline existing SOPs (for e.g. systematic literature reviews and meta-analyses) by making better use of in-depth functionality of established software and additionally via introducing complementing software/tools
- Conduct systematic reviews, write and proofread scientific reports
- General manager since September 2022

Freelancer (part-time)

see 'Workshops' section below

Workshop teacher

Since Nov 2018

- Develop and teach workshops on statistics in R; specific content and language according to the contractor
- Provide corresponding material on my websites (see 'Other skills' section below)

University of Hohenheim

Stuttgart, Germany

Research associate

Sep 2015 - Dec 2018

- Personalized consulting (ranging from single-appointment to project-accompanying) for students and research associates in terms of experimental design, data handling, statistical analyses and/or presentation of results
- Develop, conduct and manage yearly statistical analysis of yield stability data for external company
- Develop, organize and teach workshops in statistics, R and SAS
- Supervise student writing his MSc thesis

BioMath - Applied Statistics and Informatics in Life Sciences

Rostock, Germany

Junior Data scientist

Jan 2015 - Aug 2015

- Streamline statistical analyses of monitoring data
- Implement SOP for systematic literature reviews

Education

University of Hohenheim

Stuttgart, Germany

Dr. sc. agr.

Sep 2015 - Nov 2019

- DFG-funded PhD student in the biostatistics unit of Prof. Dr. Hans-Peter Piepho
- Cumulative doctoral thesis: 'Estimating heritability in plant breeding programs' graded 'magna cum laude'

Purdue University

West Lafayette, IN, USA

Visiting PhD student

Sep 2015 - Dec 2015

- Visiting PhD student in the statistical bioinformatics unit of Prof. Dr. Rebecca Whitbeck Doerge
- Arranged on personal initiative, this collaboration allowed for scientific exchange and inspiration at the beginning of my PhD

University of Hohenheim

Stuttgart, Germany

MSc Crop Science: Plant Breeding

Oct 2012 - Dec 2014

- Specialization in biostatistics and plant breeding (final grade 1.4)
- MSc Thesis: 'Statistical Evaluation and Analysis of PACTS trials as a series of on-farm strip trials without replicates' graded 1.0

University of Hohenheim

Stuttgart, Germany

BSc Agribiology (in german)

Oct 2009 - Sep 2012

- Specialization in plant sciences and genetics (final grade 1.9)
- BSc Thesis: 'Cumulative effects of glyphosate trace concentrations during root exposition of winter wheat' graded 1.0

Alexander Central High School

Taylorsville, NC, USA

Student exchange year

Aug 2006 - Jul 2007

- Completed senior year and obtained high school diploma

Skills

General	collaboration, communication, structuring, time management, strategic oversight, problem solving
Languages	German (native), English (effective operational proficiency)
Open Source	Website https://schmidtpaul.github.io/dsfair_quarto/, R package BioMathR https://schmidtpaul.github.io/BioMathR/, R package CitaviR https://schmidtpaul.github.io/CitaviR/
Presentation	data visualization, data analysis reports, scientific publications, presentations
Software	R, Python, SAS, SPSS, SQL, MS Office (VBA)
Statistics	(generalized) linear (mixed) models, exploratory & descriptive data analysis, experimental design

Workshops

Mar 2024	**Data Analysis mit Python** Bundeswehr (e-learning)	*96h*
Dec 2023	**Data Science for exp. life sciences with R (part 2)** Forschungseinrichtungen BMEL via zoom	*20h*
Dec 2023	**Data Science in den exp. Naturwiss. (Teil 2)** Forschungseinrichtungen BMEL via zoom	*20h*
Dec 2023	**Statistics with R - an Introduction** Universität Bonn via zoom	*12h*
Nov 2023	**Experimental Design - Practicals in R** CIHEAM Zaragoza via zoom	*10h*
Nov 2023	**Data Science with R - an Introduction** Max Planck Institut Tübingen via zoom	*18h*
Oct 2023	**Data science for exp. life sciences with R (part 1)** Forschungseinrichtungen BMEL via zoom	*20h*
Oct 2023	**Data Science in den exp. Naturwiss. mit R (Teil 1)** Forschungseinrichtungen BMEL via zoom	*20h*
Jul 2023	**R Introduction** Universtität Flensburg via zoom	*16h*
Jul 2023	**Statistics with R - an Introduction** Universität Bonn via zoom	*12h*
Jun 2023	**Data science for exp. life sciences with R (part 2)** Forschungseinrichtungen BMEL via zoom	*20h*
Jun 2023	**Data Science in den exp. Naturwiss. mit R (Teil 2)** Forschungseinrichtungen BMEL via zoom	*20h*
May 2023	**Statistics with R - an Introduction** Universität Bonn via zoom	*12h*
May 2023	**Data science for exp. life sciences with R (part 1)** Forschungseinrichtungen BMEL via zoom	*20h*
May 2023	**Data Science in den exp. Naturwiss. mit R (Teil 1)** Forschungseinrichtungen BMEL via zoom	*20h*
Feb 2023	**Introduction to data science for exp. life sciences with R** Pro-RUWA via zoom	*24h*
Nov 2022	**Data science for exp. life sciences with R (part 2)** Forschungseinrichtungen BMEL via zoom	*20h*
Nov 2022	**Data Science in den exp. Naturwiss. mit R (Teil 2)** Forschungseinrichtungen BMEL via zoom	*20h*
Nov 2022	**Data science for exp. life sciences with R (part 1)** Forschungseinrichtungen BMEL via zoom	*20h*
Nov 2022	**Data Science in den exp. Naturwiss. mit R (Teil 1)** Forschungseinrichtungen BMEL via zoom	*20h*
Nov 2022	**Statistics with R - an Introduction** Universität Bonn via zoom	*12h*
Oct 2022	**R and the Tidyverse** FBN, Dummerstorf via zoom	*5h*
Mar 2022	**Data science for exp. life sciences with R (part 2)** Forschungseinrichtungen BMEL via zoom	*24h*
Mar 2022	**Data Science in den exp. Naturwiss. mit R (Teil 2)** Forschungseinrichtungen BMEL via zoom	*24h*
Mar 2022	**Data science for exp. life sciences with R (part 1)** Forschungseinrichtungen BMEL via zoom	*24h*
Mar 2022	**Data Science in den exp. Naturwiss. mit R (Teil 1)** Forschungseinrichtungen BMEL via zoom	*24h*
Dec 2021	**Statistics with R (Beginner)** Universität Kassel	*24h*
Jul 2021	**Data science in den Naturwiss. mit R (Teil 2)** Forschungseinrichtungen BMEL via zoom	*24h*
May 2021	**Data science in den Naturwiss. mit R (Teil 1)** Forschungseinrichtungen BMEL via zoom	*24h*
Mar 2021	**Data science in den Naturwiss. mit R (Teil 2)** Forschungseinrichtungen BMEL via zoom	*24h*
Nov 2020	**Planning exp. designs, repeated meas., and their analyses in R** Universität Kassel via zoom	*16h*
Nov 2020	**Data science in den Naturwiss. mit R (Teil 1)** Forschungseinrichtungen BMEL via zoom	*24h*
Oct 2020	**Experimental Design - Practicals in R** CIHEAM Zaragoza via zoom	*10h*
Mar 2020	**Real-time consultation on statistics and mixed models in R** Universität Kassel	*16h*
Dec 2019	**Basics of applied statistics** Universität Rostock	*16h*
Nov 2019	**Data science for life sciences with R (part 2)** Forsch.Einr. BMEL, Braunschweig	*24h*
Oct 2019	**Data science for life sciences with R (part 1)** Forsch.Einr. BMEL, Braunschweig	*24h*
Sep 2019	**Essential basics of statistics** Universität Rostock	*16h*
Nov 2018	**Gemischte Modelle in R** Forsch.Einr. BMEL, Braunschweig	*24h*
May 2018	**Implementation of yield stability assessment with ASReml-R** Bangladesh Rice Res. Inst., Gazipur	*4h*
2016-2018	**Statistical analysis with SAS (monthly)** Universität Hohenheim, Stuttgart	*18h*
2016-2018	**Statistical analysis with R (monthly)** Universität Hohenheim, Stuttgart	*18h*

Scientific publications

1. Rahman, N. Md. F., Malik, W. A., Kabir, Md. S., Baten, Md. A., Hossain, Md. I., Paul, D. N. R., Ahmed, R., Biswas, P. S., Rahman, Md. C., Rahman, Md. S., Iftekharuddaula, K. Md., Hadasch, S., Schmidt, P., Islam, Md. R., Rahman, Md. A., Atlin, G. N., & Piepho, H.-P. (2023). 50 years of rice breeding in bangladesh: Genetic yield trends. *Theoretical and Applied Genetics*, *136*(1), 1432–2242. https://doi.org/10.1007/s00122-023-04260-x

2. Schmidt, K., Friedrichs, P., & Schmidt, P. (2022). *Warenstromanalyse tierischer lebensmittel: Gutachten zur erzeugung, verarbeitung, vermarktung und zum verzehr von fleisch, milch und eiern in deutschland* (No. 158/2022). https://www.umweltbundesamt.de/sites/default/files/medien/479/publikationen/texte_158-2022_warenstromanalyse_tierischer_lebensmittel.pdf

3. Friedrichs, P., Schmidt, P., & Schmidt, K. (2021). *Protanopie und protanomalie bei berufskraftfahrern und berufskraftfahrerinnen - prävalenz und unfallrisiko: = protanopia and protanomaly among professional drivers: Prevalence and accident risk: Vols. Heft 319*. https://bast.opus.hbz-nrw.de/frontdoor/index/index/searchtype/series/id/5/start/1/rows/25/docId/2574

4. Schmidt, K., Friedrichs, P., Cornelsen, H. C., Schmidt, P., & Tischer, T. (2021). *Musculoskeletal disorders among children and young people: Prevalence, risk factors, preventive measures: A scoping review*. https://doi.org/10.2802/511243

5. Buntaran, H., Piepho, H.-P., Schmidt, P., Rydén, J., Halling, M., & Forkman, J. (2020). Cross–validation of stagewise mixed–model analysis of swedish variety trials with winter wheat and spring barley. *Crop Science*, *60*(5), 2221–2240. https://doi.org/10.1002/csc2.20177

6. Kukowski, S., Schmidt, P., Piepho, H.-P., Röhl, M., Hauffe, H.-K., & Streck, T. (2020). Auswirkungen atmosphärischer stickstoffeinträge auf magere flachland-mähwiesen in baden-württemberg. *Natur Und Landschaft*, *95*(2), 58–67. https://doi.org/10.17433/2.2020.50153773.58-67

7. Schmidt, P. (2019). *Estimating heritability in plant breeding programs*. http://opus.uni-hohenheim.de/volltexte/2020/1720/

8. Schmidt, P., Hartung, J., Bennewitz, J., & Piepho, H.-P. (2019). Heritability in plant breeding on a genotype-difference basis. *Genetics*, *212*(4), 991–1008. https://doi.org/10.1534/genetics.119.302134

9. Schmidt, P., Hartung, J., Rath, J., & Piepho, H.-P. (2019). Estimating broad-sense heritability with unbalanced data from agricultural cultivar trials. *Crop Science*, *59*(2), 525–536. https://doi.org/10.2135/cropsci2018.06.0376

10. Schmidt, P., Möhring, J., Koch, R. J., & Piepho, H.-P. (2018). More, larger, simpler: How comparable are on-farm and on-station trials for cultivar evaluation? *Crop Science*, *58*(4), 1508–1518. https://doi.org/10.2135/cropsci2017.09.0555

11. Tulinská, J., Adel-Patient, K., Bernard, H., Líšková, A., Kuricová, M., Ilavská, S., Horváthová, M., Kebis, A., Rollerová, E., Babincová, J., Aláčová, R., Wal, J.-M., Schmidt, K., Schmidtke, J., Schmidt, P., Kohl, C., Wilhelm, R., Schiemann, J., & Steinberg, P. (2018). Humoral and cellular immune response in wistar han RCC rats fed two genetically modified maize MON810 varieties for 90 days (EU 7th framework programme project GRACE). *Archives of Toxicology*, *92*(7), 2385–2399. https://doi.org/10.1007/s00204-018-2230-z

12. Schmidt, K., Schmidtke, J., Schmidt, P., Kohl, C., Wilhelm, R., Schiemann, J., van der Voet, H., & Steinberg, P. (2017). Variability of control data and relevance of observed group differences in five oral toxicity studies with genetically modified maize MON810 in rats. *Archives of Toxicology*, *91*(4), 1977–2006. https://doi.org/10.1007/s00204-016-1857-x

13. Zeljenková, D., Aláčová, R., Ondrejková, J., Ambrušová, K., Bartušová, M., Kebis, A., Kovrižnych, J., Rollerová, E., Szabová, E., Wimmerová, S., Černák, M., Krivošíková, Z., Kuricová, M., Líšková, A., Spustová, V., Tulinská, J., Levkut, M., Révajová, V., Ševčíková, Z., … Steinberg, P. (2016). One-year oral toxicity study on a genetically modified maize MON810 variety in wistar han RCC rats (EU 7th framework programme project GRACE). *Archives of Toxicology*, *90*(10), 2531–2562. https://doi.org/10.1007/s00204-016-1798-4