Stefanie Peschel
PhD candidate

SKILLS

R Skills

Pkg-develop.	●●●●●
Renv	●●●●●
Parallelization	●●●●○
Tidyverse	●●●●○
Visualization	●●●●●
R Markdown	●●●●●
Quarto	●●●●○
Shiny	●●○○○

Programming

R	●●●●●
Git/GitHub	●●●●●
LaTeX	●●●●○
Python	●●○○○
SAS	●○○○○
C/C++	●○○○○

Languages

German	●●●●●
English	●●●●○

LINKS

- 🌐 stefpeschel.de
- 💼 stefaniepeschel
- 🐙 GitHub (stefpeschel)
- 🎓 Google Scholar

ABOUT ME

Statistician with strong expertise in developing and implementing methods in R, particularly for complex biological data. Experienced in data analysis, scientific writing, interdisciplinary collaboration, and presenting research to diverse audiences.

SOFTSKILLS

● **Adaptability and Learning Agility**
Demonstrated by my academic and professional journey from a background in banking to classical statistics and, most recently, advanced statistical methods for microbiome data analysis.

● **Presentation Skills**
Numerous presentations at scientific conferences and workshops on complex statistical topics to a variety of academic audiences.

● **Leadership**
Leader of the IBS-DR's Early Career Working for several years, organizing events and fostering community building among young scientists.

● **Teamwork and Collaboration**
Experiences in collaborative academic projects, co-organizing workshops, coordinating joint exam efforts, and contributing actively to working groups.

● **Teaching Experience**
Independently planned and delivered an introductory R programming lecture for over 350 students, including full responsibility for the exam. Assisted in other lectures and independently or collaboratively organized and conducted seminars as part of my teaching responsibilities.

EXPERIENCE

Research and Teaching Assistant + PhD Student
LMU Munich | Oct 2022 – Mar 2025
Supported lecture planning and delivery, contributed to workshops and supervised student projects. Conducted research as part of my PhD studies and beyond, including scientific writing, method development, programming, and data analysis in the context of microbiome research.

Research Assistant + PhD Student
Helmholtz Munich | Oct 2018 – Oct 2022
Developed statistical methods in R for microbiome data, conducted biomedical data analyses, and contributed to publications. Participant in the HELENA graduate program, including workshops and presentations.

Financial Advisor
Commerzbank AG | Aug 2009 – Sep 2018 (full and part-time)
Provided advisory and financial planning services to private clients and managed the day-to-day operations of the bank, initially on a full-time basis and later alongside my academic studies.

Intern (Statistical Consulting)
BMW Group | Oct 2016 – Mar 2017
Provided statistical consulting as part of a master's-level project, applying statistical methods to real-world data in a corporate setting.

Research Assistant
LMU Munich | Dec 2015 – Mar 2016 and Aug 2016 – Oct 2016
Conducted simulation studies and implemented a new method for change point detection in survival distributions, building upon my bachelor thesis.

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INTERESTS

Statistics
- Biomedical data
- High-dimensional data
- Compositional data
- Network analysis
- Exploratory data analysis
- Permutation testing
- Multiple testing and error rate control
- Simulation studies

Private
- Science & Technology
- Nature
- Photography
- Board Games

AWARDS

Bernd-Streitberg-Preis
By the IBS-DR (2018)
for my master's thesis.

ENGAGEMENT
- Leader of the Early Career Working Group (IBS-DR)
Mar 2021 – Present
- Member of the International Biometric Society – German Region (IBS-DR)
Mar 2019 – Present

EDUCATION

PhD Candidate in Biostatistics
LMU Munich | Oct 2018 – Present
Title: "From network learning to improved permutation testing: addressing statistical challenges in microbial data analysis"

Master of Science (M.Sc.)
in Statistics with an Economic and Social Science Background
LMU Munich | Apr 2016 – May 2018
Title: „Statistical Approaches to Characterize and Compare Networks of Microbiome Data"
Grade: 1.15

Bachelor of Science (B.Sc.) in Statistics
LMU Munich | Apr 2013 – Mar 2016
Title: "Change-Point-Schätzung bei Überlebensdauern von Intensivpatienten"
Minor subject: Business Administration (BWL)
Grade: 1.24

Bachelor Studies in Business Mathematics
LMU Munich | Oct 2011 – Mar 2013
Without graduation

Training as a personal banker
Commerzbank AG Munich | Sep 2007 – Jul 2009

PROJECTS

- **NetCoMi**
Proposed workflow for constructing, analyzing, and comparing networks for microbiome data. Implemented as R package "NetCoMi".
Link: netcomi.de

- **permAprox**
Proposed method to accurately approximate p-values in permutation settings. Implemented as R package "permAprox" (not yet public).
Link: stefpeschel.de/project/permaprox

- **OMA (Orchestrating Microbiome Analysis)**
Contribution to the online book with two chapters on network analysis.
Link: microbiome.github.io/oma/…

PUBLICATIONS

- **Statistical end-to-end analysis of large-scale microbial growth data with DGrowthR**
Feldl, M., Olayo-Alarcon, R., *et al*. (2025). *bioRxiv*.

- **Over-optimism in unsupervised microbiome analysis: Insights from network learning and clustering**
Ullmann, T., Peschel, S. , *et al*. (2023). *PLoS computational biology*.

- **NetCoMi: network construction and comparison for microbiome data in R**
Peschel, S., Müller, C.L., *et al*. (2021). *Briefings in bioinformatics*.

- **Maturation of the gut microbiome during the first year of life contributes to the protective farm effect on childhood asthma**
Depner, M., Taft, D.H., *et al*. (2020). *Nature medicine*.

For a full list of publications, see my ORCID profile (0000-0002-7936-7627).