

# Samuel Pawel

Postdoctoral Researcher

Epidemiology, Biostatistics and Prevention Institute, University of Zurich

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## Education

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### University of Zurich

*PhD in Epidemiology and Biostatistics*

*Supervisor: Prof. Dr. Leonhard Held*

*Thesis: Reverse-Bayes Methods for Replication Studies*

Zurich, CH

10/2019 – 03/2023

### University of Zurich

*Master of Science in Biostatistics; Grade: 5.9/6.0*

*Thesis: Predictive evaluation of replication studies*

Zurich, CH

08/2017 – 08/2019

### University of Zurich

*Bachelor of Science in Psychology; Grade: 5.7/6.0; Minor: Biology*

*Thesis: Questionable research practices in psychological research and recommendations to overcome the current replicability crisis*

Zurich, CH

08/2014 – 01/2018

## Work Experience

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### University of Zurich; Epidemiology, Biostatistics and Prevention Institute

*Postdoctoral Researcher*

Zurich, CH

04/2023 – present

### University of Amsterdam; Department of Psychological Methods

*Visiting PhD Student*

Amsterdam, NL

02/2022 – 08/2022

### University of Zurich; Epidemiology, Biostatistics and Prevention Institute

*PhD Student*

Zurich, CH

10/2019 – 03/2023

### University of Zurich; Chair for Psychological Methods, Evaluation, and Statistics

*Student Assistant*

Zurich, CH

10/2018 – 12/2018

### Stiftung Forelhaus Zürich

*Night Watch*

Zurich, CH

02/2016 – 10/2018

### University of Zurich; Cognitive Psychology Unit

*Student Assistant*

Zurich, CH

08/2016 – 01/2018

### Psychiatric Clinic Wil

*Alternative Civilian Service*

Wil, CH

01/2013 – 07/2014

## Teaching

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### Statistical Consulting (MSc in Biostatistics)

*Supervisor*

2023

### Biostatistics Journal Club (MSc in Biostatistics)

*Teaching Assistant (2021), Instructor (2023)*

2021, 2023

<b>Longitudinal Data Analysis</b> (MSc in Biostatistics) <i>Teaching Assistant</i>	2020
<b>Clinical Biostatistics</b> (MSc in Biostatistics) <i>Teaching Assistant</i>	2019

## Research Interests

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Biostatistics	Bayesian statistics	Meta-science
Statistical inference	Replication studies methodology	Computational reproducibility

## Memberships and other Roles

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- Member of the International Society for Bayesian Analysis
- Fellow of the Center for Reproducible Science from the University of Zurich
- Founding member of the Swiss Reproducibility Network Academy
- Co-Organizer of the Zurich R User Group (from 2020 to 2023)

## Reviewer for Journals

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Journal of the American Statistical Association (2)	The Annals of Applied Statistics (1)
Statistical Papers (1)	Biometrical Journal (2)
Biometrics (1)	The American Statistician (1)
PLOS ONE (1)	Meta-Psychology (1)
New England Journal of Statistics in Data Science (1)	

## Skills

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Languages	English (fluent), German (native), French (basic), Japanese (beginner)
Computer	R (advanced), $\LaTeX$ (intermediate), Linux/shell/git/Docker/Make (intermediate), Python (basic)

## Grants

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- 2022 – Mobility grant in SNSF research project (5'923 CHF)

## Awards and Prizes

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Master Thesis: *Predictive Evaluation of Replication Studies* – UZH Semester award for outstanding scholarly work

## Organizational Activities

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**Swiss ReproHack** on 20th May 2022. Organized with Charlotte Micheloud, Ursa Bernardic, and Marianna Rosso. 13 Participants from all over Switzerland. Talks by Mark Robinson, Anja Eggert, Tim Errington.

**Brown bag seminar series** in 2022 and 2021. Organized with Lucas Kook occasional lunch seminars for members of the Department of Biostatistics at the University of Zurich .

## Software

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R package <b>BayesRep</b>	<a href="https://CRAN.R-project.org/package=BayesRep">https://CRAN.R-project.org/package=BayesRep</a>	Role: Creator
R package <b>BayesRepDesign</b>	<a href="https://CRAN.R-project.org/package=BayesRepDesign">https://CRAN.R-project.org/package=BayesRepDesign</a>	Role: Creator
R package <b>ciCalibrate</b>	<a href="https://CRAN.R-project.org/package=ciCalibrate">https://CRAN.R-project.org/package=ciCalibrate</a>	Role: Creator
R package <b>ppRep</b>	<a href="https://CRAN.R-project.org/package=ppRep">https://CRAN.R-project.org/package=ppRep</a>	Role: Creator
R package <b>ReplicationSuccess</b>	<a href="https://CRAN.R-project.org/package=ReplicationSuccess">https://CRAN.R-project.org/package=ReplicationSuccess</a>	Role: Contributor

## Conference Talks and Posters

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Power Priors for Replication Studies, *Bayesian Biostatistics 2023*, Utrecht, NL, 2023, October

Pitfalls and Potentials in Simulation Studies, *CEN 2023*, Basel, CH, 2023, September

Evidential Calibration of Confidence Intervals, *Workshop: “Safe, Anytime-Valid Inference (SAVI) and Game-theoretic Statistics”*, Eindhoven, NL, 2022, May

The sceptical Bayes factor for the evidential assessment of replication success, *GMDS & CEN-IBS 2020*, Berlin, DE, 2020, September

Predictive evaluation of replication studies, *Bayesian Biostatistics*, Lyon, FR, 2019, May

## Articles and Preprints

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A star superscript (\*) denotes equal contribution

18. Siepe\*, B.S., Bartoš\*, F., Morris, T.P., Boulesteix, A.-L., Heck, D.W., **Pawel\*, S.** (2023). Simulation Studies for Methodological Research in Psychology: A Standardized Template for Planning, Preregistration, and Reporting. Preprint:10.31234/osf.io/ufgy6. Code:<https://github.com/bsiepe/SimPsychReview>
17. **Pawel\*, S.**, Heyard\*, R., Micheloud, C., Held, L. (2023). Replication of “null results” – Absence of evidence or evidence of absence? *eLife* (to appear). Article:10.7554/eLife.92311. Preprint:10.48550/arXiv.2305.04587. Code:<https://gitlab.uzh.ch/samuel.pawel/rsAbsence>

16. **Pawel, S.**, Aust, F., Held, L., Wagenmakers, E.-J. (2023). Power Priors for Replication Studies. *TEST* (to appear). Article:10.1007/s11749-023-00888-5. Preprint:10.48550/arXiv.2207.14720. Code:<https://github.com/SamCH93/ppReplication>
15. **Pawel, S.**, Consonni, G., Held, L. (2023). Bayesian approaches to designing replication studies. *Psychological Methods*, Article:10.1037/met0000604. Preprint:10.48550/arXiv.2211.02552. Code:<https://github.com/SamCH93/BATDRS>
14. **Pawel, S.**, Aust, F., Held, L., Wagenmakers, E.-J. (2023). Normalized power priors always discount historical data. *Stat*, 12(1), e591. Article:10.1002/sta4.591. Preprint:10.48550/ARXIV.2206.04379. Code:<https://github.com/SamCH93/ppPooling>
13. **Pawel, S.**, Ly, A., Wagenmakers, E.-J. (2023). Evidential Calibration of Confidence Intervals. *The American Statistician*, Article:10.1080/00031305.2023.2216239. Preprint:10.48550/ARXIV.2206.12290. Code:<https://github.com/SamCH93/ECoCI>
12. **Pawel\***, **S.**, Kook\*, L., Reeve, K. (2023). Pitfalls and potentials in simulation studies: Questionable research practices in comparative simulation studies allow for spurious claims of superiority of any method. *Biometrical Journal*, e2200091. Article:10.1002/bimj.202200091. Preprint:10.48550/arXiv.2203.13076. Code:<https://github.com/SamCH93/SimPaper>
11. Drude, N., Martinez-Gamboa, L., Danziger, M., Collazo, A., Kniffert, S., Wiebach, J., Nilsonne, G., Konietzke, F., Piper, S., **Pawel, S.**, . . . , Toelch, U. (2022). Planning preclinical confirmatory multicenter trials to strengthen translation from basic to clinical research – a multi-stakeholder workshop report. *Translational Medicine Communications*, 7(24). Article:10.1186/s41231-022-00130-8. Preprint:10.21203/rs.3.rs-1855244/v1
10. Bartoš, F., **Pawel, S.**, Wagenmakers, E.-J. (2022). When Evidence and Significance Collide. Preprint:10.48550/arXiv.2206.04435. Code:<https://osf.io/hvmkc/>
9. Debelak, R., **Pawel, S.**, Strobl, C., Merkle, E. C. (2022). Score-based measurement invariance checks for Bayesian maximum-a-posteriori estimates in item response theory. *British Journal of Mathematical and Statistical Psychology*, 75(3), 728–752. Article:10.1111/bmsp.12275. Preprint:10.31234/osf.io/24a9g
8. **Pawel, S.**, Matthews, R., Held, L. (2022). Comment on “Bayesian additional evidence for decision making under small sample uncertainty”. *BMC Medical Research Methodology*, 22(149). Article:10.1186/s12874-022-01635-4. Code:<https://github.com/SamCH93/BAEcomment>
7. **Pawel, S.**, Held, L. (2022). The sceptical Bayes factor for the assessment of replication success. *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*, 84(3). 879–911. Article:10.1111/rssb.12491. Preprint:10.48550/arXiv.2009.01520. Code:<https://gitlab.uzh.ch/samuel.pawel/BFScore>
6. Held, L., Micheloud, C., **Pawel, S.** (2022). The assessment of replication success based on relative effect size. *The Annals of Applied Statistics*, 16(2), 706–720. Article:10.1214/21-AOAS1502. Preprint:10.48550/arXiv.2009.07782. Code:<https://github.com/SamCH93/RSGolden>
5. Held, L., Matthews, R., Ott, M., **Pawel, S.** (2022). Reverse-Bayes methods for evidence assessment and research synthesis. *Research Synthesis Methods*, 13(3), 295–314. Article:10.1002/jrsm.1538. Preprint:10.48550/arXiv.2102.13443. Code:<https://gitlab.uzh.ch/samuel.pawel/Reverse-Bayes-Code>
4. Lenggenhager, D., **Pawel, S.**, Honcharova-Biletska, H., Evert, K., Wenzel, J. J., Montani, M., Furrer, E., Fraga, M., Moradpour, D., Sempoux, C., Weber, A. (2021). The histologic presentation of hepatitis E reflects patients’ immune status and pre-existing liver condition. *Modern Pathology*, 34, 233–248. Article:10.1038/s41379-020-0593-1
3. Held, L., **Pawel, S.**, Schwab S. (2020). Replication power and regression to the mean. *Significance*, 17(6), 10–11. Article:10.1111/1740-9713.01462

2. Held, L., **Pawel, S.** (2020). Comment on “The Role of  $p$ -Values in Judging the Strength of Evidence and Realistic Replication Expectations”. *Statistics in Biopharmaceutical Research*, 13(1), 46–48. Article:10.1080/19466315.2020.1828161
1. **Pawel, S.**, Held, L. (2020). Probabilistic forecasting of replication studies. *PLOS ONE*, 15(4), e0231416. Article:10.1371/journal.pone.0231416. Preprint:10.31234/osf.io/fhwb7. Code:<https://github.com/SamCH93/PFoRS>

## Other Publications

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2. Hofmann, F., **Pawel, S.**, Hebeisen, M., Held, L. (2023). CRS Primer: Dynamic Reporting. Publication:10.5281/zenodo.8354360.
1. Hofmann, F., **Pawel, S.**, Röthlisberger, M., Held, L. (2023). CRS Primer: Digital Collaboration. Publication:10.5281/zenodo.8354375.