

CURRICULUM VITAE

LEONHARD HELD

June 14, 2021

PERSONAL DATA

Born: July 15, 1966, Erlangen, Germany.

Nationality: German, Swiss

Married, three children.

Business Address:

University of Zurich
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Berghaldenstrasse 31
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EDUCATION

Habilitation	2000	LMU Munich	Statistics
Promotion (PhD, “summa cum laude”)	1997	LMU Munich	Statistics
Diplom (MSc, “with distinction”)	1993	LMU Munich	Statistics

PROFESSIONAL EXPERIENCE

Director, Center for Reproducible Science
University of Zurich
20018-present

Full Professor of Biostatistics, Head of Department
Member of Faculty of Medicine and Faculty of Science (“Doppelprofessur”)
Department of Biostatistics
Epidemiology, Biostatistics and Prevention Institute
University of Zurich
2006-present

Professor of Biostatistics
Department of Statistics
Ludwig-Maximilians-University Munich
2003-2006

Senior Lecturer in Medical Statistics
Department of Mathematics and Statistics
Lancaster University, UK
2001-2002

Professor of Biostatistics (temporary appointment)
Department of Statistics
Ludwig-Maximilians-University Munich
Summer, 2001

Lecturer in Statistics
Department of Epidemiology and Public Health
Imperial College London, UK
2000-2001

Senior Scientist (“wissenschaftlicher Assistent”) in Statistics
Department of Statistics
Ludwig-Maximilians-University Munich
1997-2000

Visiting Scholar
Department of Statistics
University of Washington, USA
1995-1996

Research Associate (“wissenschaftlicher Mitarbeiter”) in Statistics
Department of Statistics
Ludwig-Maximilians-University Munich
1994-1997

RESEARCH INTERESTS

Statistical Aspects of Reproducibility and Replicability
Infectious Disease Data Analysis
Spatial and Spatio-temporal Epidemiology
Clinical Biostatistics, Medical Statistics
Making and Evaluating Probabilistic Predictions
Foundations of Statistical Inference

SELECTED PROFESSIONAL ACTIVITIES

Chair, Section on Biostatistics and Pharmaceutical Statistics, International Society of Bayesian Analysis (ISBA), 2017-2018.

President of the Austro-Swiss Region (ROeS) of the International Biometric Society (IBS), 2014-2015.

Co-chair of Scientific Committee of the Joint Meeting of the International Biometric Society (IBS), Austro-Swiss and Italian Regions, 2015, Milan. <http://www.ibs-roes.org/iroes-2015/>

Organizer of Conference “Bayesian Biostatistics”, 2014, Zurich.

Program Committee, CEN 2011, Bridging Biostatistical Theory and Application, September 12-16 2011, University of Zurich.

Organizer of Workshop on Bayesian Inference for Latent Gaussian Models with Applications 2011, Zurich. www.math.uzh.ch/bilgm11

Scientific Program Committee (SPC) of the International Society for Clinical Biostatistics (ISCB) Annual meeting 2010, Montpellier.

Scientific Committee, International Workshop on Statistical Modelling 2010, Glasgow.

Scientific Organizer of Oberwolfach workshop "Statistical Issues in Prediction", Oberwolfach, 2010.

Program Committee, Lifestat 2008, Statistics and Life Sciences, March 10-13 2008, Ludwig-Maximilians-Universität München

Program Committee, UseR!, The R User Conference 2008, August 12-14, Technische Universität Dortmund, Germany

Local Organizer, *SemStat* Summer School "Statistics of Spatio-temporal Systems" in Höhenried near Munich, Dezember 12-19, 2004

Editorial Board Membership:

Area Editor for Epidemiology and Clinical Science, *Annals of Applied Statistics*, 2017 – present.

Editor, *Biometrical Journal*, Wiley, 2008 – 2011.

Associate Editor, *Biometrical Journal*, Wiley, 2006-2008, 2012 – present.

Associate Editor, *Biostatistics*, Oxford University Press, 2001 – 2007.

Associate Editor, *Applied Statistics (Journal of the Royal Statistical Society, Series C)*, 2002 – 2005.

Associate Editor, *Statistical Modelling*, Sage, 2007 – 2008

Associate Editor, *ISBA Bulletin*, 2001

Corresponding Editor, *ISBA Bulletin*, 1999 – 2000

Membership in Professional Societies:

Member, *SemStat* ("Séminaire Européen de Statistique") Steering Committee 2004-2006

Member, Research Section of the Royal Statistical Society 2001-2002

Membership in Royal Statistical Society, American Statistical Association, International Biometric Society, International Society for Bayesian Analysis

Selected Peer-Review Activities:

Referee of research proposals for: *Health Data Research UK*; *Natural Sciences and Engineering Research Council of Canada (NSERC)*; *L'Agence nationale de la recherche (ANR)*; *German Science Foundation (DFG)*; *Austrian Science Fund (FWF)*; *Dutch Research Council (NWO)*; *Research Council of Norway (RCN)*; *Swiss National Science Foundation (SNF)*; *Wiener Wissenschafts-, Forschungs- und Technologiefonds (WWTF)*; *Österreichischer Akkreditierungsrat (ÖAR)*; *Deutsches Bundesministerium für Bildung und Forschung (BMBF)*; *Medical Research Council (MRC)*

Reviewer of book proposals for: John Wiley & Sons; Oxford University Press; Pearson Education

Ad hoc referee for: *American Journal of Epidemiology*; *Biometrical Journal*; *Biometrics*; *Biometrika*; *Biostatistics*; *BMC Cancer*; *BMC Medical Education*; *BMC Public Health*; *Canadian Journal of Statistics*; *Computational Statistics and Data Analysis*; *Epidemiology and Infection*; *International Journal of Methods in Psychiatric Research*; *Journal of Applied Statistics*; *Computational and Mathematical Methods in Medicine*; *Journal of Computational and Graphical Statistics*; *Journal of Statistical Planning and Inference*; *Journal of the American Statistical Association: Applications and Case Studies*; *Journal of the American Statistical Association: Theory and Methods*; *Journal of the Royal Statistical Society; Series A, B, C and D*; *Journal of Statistical Planning and Inference*; *Metrika*; *PLoS ONE*; *PLoS Computational Biology*; *PLoS Medicine*; *Parasites and Vectors*; *Scandinavian Journal of Statistics*; *Statistical Modelling*; *Statistical Science*; *Statistics in Medicine*; *Trials*

HONORS AND AWARDS

Read Paper “A New Standard for the Analysis and Design of Replication Studies”, Royal Statistical Society International Conference, 4 September 2019.

13th Armitage Lecturer, MRC Biostatistics Unit Cambridge, 2015

Research Grant of the *European Science Foundation (ESF)*, Scientific Programme on *Highly Structured Stochastic Systems*, Autumn 1999

Research Grant of the *German Academic Exchange Service (DAAD)*, 1995-1996

PUBLICATIONS

Books/Monographs:

- 8) Held, L. and Sabanés Bové, D.
Likelihood and Bayesian Inference – With Applications in Biology and Medicine. Springer, 2020. 402 pages.
- 7) Held, L., Hens, N., O’Neill, P. and Wallinga, J. (editors)
Handbook of Infectious Disease Data Analysis. CRC Press, 2020. 554 pages.
- 6) Held, L. and Sabanés Bové, D.
Applied Statistical Inference. Springer, 2014.
- 5) Held, L., Rufibach, K. and Seifert, B.
Medizinische Statistik: Konzepte, Methoden, Anwendungen. Pearson Education, 2013.
- 4) Held, L.
Methoden der statistischen Inferenz - Likelihood und Bayes. Spektrum Akademischer Verlag (Springer), 2008.
- 3) Finkenstädt, B., Held, L. and Isham, V. (eds.)
Statistical Methods for Spatio-temporal Systems. Chapman & Hall/CRC Press, Monographs in Statistics and Applied Probability No. 107, 2006.
- 2) Rue, H. and Held, L.
Gaussian Markov Random Fields; Theory and Applications. Chapman & Hall/CRC Press, Monographs in Statistics and Applied Probability No. 104, 2005.
Awarded with an **honorable mention** in the competition for the 2007 DeGroot Prize, see <http://www.bayesian.org/awards/DeGrootPrize.html>
- 1) Knorr-Held, L.
Hierarchical Modelling of Discrete Longitudinal Data; Applications of Markov Chain Monte Carlo (my PhD thesis). Herbert Utz Verlag, Munich, 1997.

Journal Articles (Methodology):

- 101) Bekker-Nielsen Dunbar, M. and Held, L.
Assessing the effect of school closures on the spread of COVID-19 in Zurich.
Proceedings of the Royal Statistical Society Special Topic Meeting on R/local R/transmission, to appear.
- 100) Held, L., Micheloud, C. and Pawel, S.
The assessment of replication success based on relative effect size.
Annals of Applied Statistics, to appear.
- 99) Micheloud, C. and Held, L.
Power Calculations for Replication Studies.
Statistical Science, to appear.
- 98) Bracher, J. and Held, L.
A marginal moment matching approach for fitting endemic-epidemic models to under-reported disease surveillance counts.
Biometrics, 2020, <https://doi.org/10.1111/biom.13371>

- 97) Bracher, J. and Held, L.
Endemic-epidemic models with discrete-time serial interval distributions for infectious disease prediction.
International Journal of Forecasting, **69**, 2020. <https://doi.org/10.1016/j.ijforecast.2020.07.002>.
- 96) Held, L.
The harmonic mean χ^2 test to substantiate scientific findings.
Journal of the Royal Statistical Society, Series C, **69**, 697-708 2020. <https://doi.org/10.1111/rssc.12410>.
- 95) Pawel, S. and Held, L.
Probabilistic forecasting of replication studies
PLOS ONE, **15**(4), e0231416, 2020. <https://doi.org/10.1371/journal.pone.0231416>.
- 94) Birrell, P.J., Wernisch, L., Tom, B.D.M., Held, L., Roberts, G.O., Pebody, R.G. and De Angelis, D.
Efficient real-time monitoring of an emerging influenza epidemic: how feasible?
Annals of Applied Statistics, **14**, 74-93, 2020, <http://dx.doi.org/10.1214/19-A0AS1278>.
- 93) Heyard, R., Timsit, J.-F. and Held, L.
Validation of discrete time-to-event prediction models in the presence of competing risks.
Biometrical Journal, **62**, 643-657, 2020, <https://onlinelibrary.wiley.com/doi/full/10.1002/bimj.201800293>.
- 92) Held, L.
A new standard for the analysis and design of replication studies (with discussion).
Journal of the Royal Statistical Society, Series A, **183**, 431-448, 2020, <https://doi.org/10.1111/rssa.12493>
- 91) Held, L.
The assessment of intrinsic credibility and a new argument for $p < 0.005$.
Royal Society Open Science, **6**, 2019. <https://doi.org/10.1098/rsos.181534>
- 90) Ott, M. and Held, L.
Bayesian calibration of p -values from Fisher's exact test.
International Statistical Review, **87**, 285-305. 2019. <https://doi.org/10.1111/insr.12307>
- 89) Heyard, R. and Held, L.
The quantile probability model.
Computational Statistics and Data Analysis, **132**, 84-99, 2019, <https://doi.org/10.1016/j.csda.2018.08.022>
- 88) Heyard, R., Timsit, J.-F., , Essaied, W. I. and Held, L.
Dynamic clinical prediction models for discrete time-to-event data with competing risks - a case study on the OUTCOMEREA database.
Biometrical Journal, **61**, 514-534, 2019, <https://doi.org/10.1002/bimj.201700259>.
- 87) Gravestock, I. and Held, L.
Power priors based on multiple historical studies for binary outcomes.
Biometrical Journal, **61**(5), 1201-1218, 2019. <http://dx.doi.org/10.1002/bimj.201700246>.
- 86) Günhan, B. K., Friede, T. and Held, L.
A design-by-treatment interaction model for network meta-analysis and meta-regression with integrated nested Laplace approximations.
Research Synthesis Methods, **9**(2), 179-194, 2018. <http://dx.doi.org/10.1002/jrsm.1285>.

- 85) Held, L. and Ott, M.
On P -values and Bayes factors.
Annual Review of Statistics and Its Applications, **5**, 393–419, 2018.
- 84) Benjamin, D. J., Berger, J. O., Johannesson, M., Nosek, B. A., Wagenmakers, E.-J., [...], Held, L., [...], Johnson, V. E.
Redefine Statistical Significance
Nature Human Behaviour, **2**, 6-10, 2018. doi:10.1038/s41562-017-0189-z.
- 83) Muff, S., Puhan, M. and Held, L.
Bias away from the Null due to miscounted outcomes? A case study on the TORCH trial.
Statistical Methods in Medical Research, **27**, 3151–3166, 2018.
- 82) Ferkingstad, E., Held, L., Rue, H.
Fast and accurate Bayesian model criticism and conflict diagnostics using R-INLA.
STAT, **6**, 331-344, 2017.
- 81) Held, L., Meyer, S. and Bracher, J.
Probabilistic forecasting in infectious disease epidemiology: The thirteenth Armitage lecture.
Statistics in Medicine, **36**, 3443-3460, 2017.
- 80) Gravestock, I. and Held, L.
Adaptive power priors with empirical Bayes for clinical trials.
Pharmaceutical Statistics, **16**(5), 349-360, 2017.
- 79) Muff, S., Ott, M., Braun, J. and Held, L.
Bayesian two-component measurement error modelling for survival analysis using INLA - A case study on cardiovascular disease mortality in Switzerland.
Computational Statistics and Data Analysis, **113**, 177–193, 2017.
First published date: January-01-2017 <http://dx.doi.org/10.1177/0962280217694403>
- 78) Riebler, A. and Held, L.
Projecting the future burden of cancer: Bayesian age-period-cohort analysis with integrated nested Laplace approximations.
Biometrical Journal, **59**, 531–549, 2017.
- 77) Meyer, S. and Held, L.
Incorporating social contact data in spatio-temporal models for infectious disease spread.
Biostatistics, **18**, 338-351, 2017.
- 76) Wei, W., Balabdaoui, F. and Held, L.,
Calibration tests for multivariate Gaussian forecasts.
Journal of Multivariate Analysis, **154**, 216-233, 2017.
- 75) Held, L. and Sauter, R.
Adaptive prior weighting in generalized regression.
Biometrics, **73**, 242-251, 2017.
- 74) Meyer, S., Held, L. and Höhle, M.
Spatio-temporal analysis of epidemic phenomena using the R package surveillance.
Journal of Statistical Software, **77**: 11, 2017. <https://doi.org/10.18637/jss.v077.i11>
- 73) Muff, S., Held, L., and Keller, L.
Marginal or conditional regression models for correlated non-normal data?
Methods in Ecology and Evolution, **7**, 1514-1524, 2016.

- 72) Held, L., Gravestock, I. and Sabanés Bové, D.
Objective Bayesian model selection for Cox regression.
Statistics in Medicine, **35**, 5376-5390, 2016.
- 71) Held, L. and Ott, M.
How the maximal evidence of P values against point null hypotheses depends on sample size.
American Statistician, **70**, 335-341, 2016.
- 70) Meyer, S., Warnke, I., Rössler, W. and Held, L.
Model-based testing for space-time interaction using point processes: An application to psychiatric hospital admissions in an urban area.
Spatial and Spatio-temporal Epidemiology, **17**, 15-25, 2016.
- 69) Sauter, R. and Held, L.
Quasi-complete separation in random effects of binary response mixed models.
Journal of Statistical Computation and Simulation, **86**, 2781-2796, 2016.
- 68) Sauter, R. and Held, L.
Network meta-analysis with integrated nested Laplace approximations.
Biometrical Journal, **57**, 1038-1050, 2015.
- 67) Held, L., Sabanés Bové, D., Gravestock, I.
Approximate Bayesian model selection with the deviance statistic.
Statistical Science, **30**, 242-257, 2015.
- 66) Roos, M., Martins, T. G., Held, L. and Rue, H.
Sensitivity analysis for Bayesian hierarchical models.
Bayesian Analysis, **10**, 321-349, 2015.
- 65) Muff, S., Riebler, A., Held, L., Rue, H. and Saner, P.
Bayesian analysis of measurement error models using INLA.
Journal of the Royal Statistical Society, Series C (Applied Statistics), **64**, 231-252, 2015.
- 64) Sabanés Bové, D., Held, L. and Kauermann, G.
Objective Bayesian model selection in generalised additive models with penalised splines.
Journal of Computational and Graphical Statistics, **24**, 394-415, 2015.
- 63) Wei, W. and Held, L.
Calibration tests for count data.
Test, **23**, 787-805, 2014.
- 62) Meyer, S. and Held, L.
Power-law models for infectious disease spread.
Annals of Applied Statistics, **8**, 1612-1639, 2014.
- 61) Braun, J., Held, L. and Sabanés Bové, D.
Choice of generalized linear mixed models using predictive crossvalidation.
Computational Statistics and Data Analysis, **75**, 190-202, 2014.
- 60) Geilhufe, M., Held, L., Skrovseth, S. O., Simonsen, G. S. and Godtliebsen, F.
Power law approximations of movement network data for modeling infectious disease spread.
Biometrical Journal, **56**, 363-382, 2014.
- 59) Braun, J., Held, L. and Ledergerber, B., and the Swiss HIV Cohort Study
Accounting for baseline differences and measurement error in the analysis of change over time.
Statistics in Medicine, **33**, 2-16, 2014.

- 58) Held, L.
Reverse-Bayes analysis of two common misinterpretations of significance tests.
Clinical Trials, **10**, 236-242, 2013.
- 57) Held, L. and Paul, M.
Modeling seasonality in space-time infectious disease surveillance data.
Biometrical Journal, **54**, 824-843, 2012.
- 56) Schrödle, B., Held, L. and Rue, H.
Assessing the impact of a movement network on the spatio-temporal spread of infectious diseases.
Biometrics, **68**, 736-744, 2012.
- 55) Held, U., Sabanes Bove, D., Steurer, J., Held, L.
Validating and updating a risk model for pneumonia - a case study
BMC Medical Research Methodology, 2012, **12**: 99. <http://dx.doi.org/DOI:10.1186/1471-2288-12-99>
- 54) Held, L. and Riebler, A.
A conditional approach for inference in multivariate age-period-cohort models.
Statistical Methods in Medical Research, **21**, 311-329, 2012.
- 53) Riebler, A., Held, L. and Rue, H.
Estimation and extrapolation of time trends in registry data - Borrowing strength from related populations.
Annals of Applied Statistics, **6**, 304-333, 2012.
- 52) Riebler, A., Held, L., Rue, H. and Bopp, M.
Gender-specific differences and the impact of family integration on time trends in age-stratified Swiss suicide rates.
Journal of the Royal Statistical Society, Series A (Statistics in Society), **175**, 473-490, 2012.
- 51) Braun, J., Held, L. and Ledergerber, B.
Predictive cross-validation for the choice of linear mixed-effects models with application to data from the Swiss HIV Cohort Study
Biometrics, **68**, 53-61, 2012.
- 50) Sabanés Bové, D. and Held, L.
Hyper-g priors for generalized linear models.
Bayesian Analysis, **6**, 387-410, 2011.
- 49) Sabanés Bové, D. and Held, L.
Bayesian fractional polynomials.
Statistics and Computing, **21**, 309-324, 2011.
- 48) Roos, M. and Held, L.
Sensitivity analysis in Bayesian generalized linear mixed models for binary data.
Bayesian Analysis, **6**, 259-278, 2011.
- 47) Paul, M. and Held, L.
Predictive assessment of a non-linear random effects model for multivariate time series of infectious disease counts.
Statistics in Medicine, **30**, 1118-1136, 2011.
- 46) Schrödle, B., Held, L., Riebler, A. and Danuser, J.
Using INLA for the evaluation of veterinary surveillance data from Switzerland: A case study.
Journal of the Royal Statistical Society, Series C (Applied Statistics), **60**, 261-279, 2011.

- 45) Schrödle, B., Held, L.
Spatio-temporal disease mapping using INLA.
Environmetrics, **22**, 725–734, 2011.
- 44) Schrödle, B. and Held, L.
A primer on disease mapping and ecological regression using INLA.
Computational Statistics, **26**, 241-258, 2011.
- 43) Held, L., Rufibach, K. and Balabdaoui, F.
A score regression approach to assess calibration of continuous probabilistic predictions.
Biometrics, **66**, 1295-1305, 2010.
- 42) Held, L.
A nomogram for P values.
BMC Medical Research Methodology, 2010, **10**: 21. <http://dx.doi.org/DOI:10.1186/1471-2288-10-21>
- 41) Paul, M., Riebler, A., Bachmann, L., Rue, H., and Held, L.
Bayesian bivariate meta-analysis of diagnostic test studies using integrated nested Laplace approximations.
Statistics in Medicine, **29**, 1325-1339, 2010.
- 40) Riebler, A. and Held, L.
The analysis of heterogeneous time trends in multivariate age-period-cohort models.
Biostatistics, **11**, 57-69, 2010.
- 39) Kohlmann, M., Held, L. and Grunert, V.-P.
Classification of therapy resistance based on longitudinal biomarker profiles.
Biometrical Journal, **51**, 610-626, 2009.
Reply to Letter to the Editor in *Biometrical Journal*, **52**, 567-569, 2010.
- 38) Frühwirth-Schnatter, S., Frühwirth, R., Held, L. and Rue, H.
Improved auxiliary mixture sampling for hierarchical models of non-Gaussian data.
Statistics and Computing, **19**, 479-492, 2009.
- 37) Czado, C., Gneiting, Held, L.
Predictive model assessment for count data.
Biometrics, **65**, 1254-1261, 2009.
- 36) Höhle, M., Paul, M. and Held, L.
Statistical approaches to the monitoring and surveillance of infectious diseases for veterinary public health.
Preventive Veterinary Medicine, **91**, 2-10, 2009.
- 35) Paul, M., Held, L., Toschke, A.M.
Multivariate modelling of infectious disease surveillance data.
Statistics in Medicine, **27**, 6250-6267, 2008.
- 34) Gneiting, T., Stanberry, L.I., Gruit, E.P., Held, L., Johnson, N.A.
Assessing probabilistic forecasts of multivariate quantities, with an application to ensemble predictions of surface winds.
Test, **17**, 211-235, 2008.
- 33) Gneiting, T., Stanberry, L.I., Gruit, E.P., Held, L., Johnson, N.A.
Rejoinder on: Assessing probabilistic forecasts of multivariate quantities, with an application to ensemble predictions of surface winds.
Test, **17**, 256-264, 2008.

- 32) Riebler, A., Held, L., Stephan, W.
Bayesian variable selection for detecting adaptive genomic differences among populations.
Genetics, **178**, 1817-1829, 2008.
- 31) Soubeyrand, S., Held, L., Höhle, M. and Sache, I.
Modelling the spread in space and time of an airborne plant disease.
Journal of the Royal Statistical Society, Series C (Applied Statistics), **57**, 253-272, 2008.
- 30) Hennerfeind, A., Held, L. and Sauleau, E.A.
A Bayesian analysis of relative cancer survival with geoaddivitive models.
Statistical Modelling, **8**, 117-139, 2008.
- 29) Schmid, V. J. and Held, L.
Bayesian age-period-cohort modeling and prediction - BAMP
Journal of Statistical Software, **21**(8), 2007.
- 28) Sauleau, E.A., Hennerfeind, A., Buemi, A. and Held, L.
Age, period and cohort effects in Bayesian smoothing of spatial cancer survival with geoaddivitive models.
Statistics in Medicine, **26**, 212-229, 2007.
- 27) Dargatz, C., Georgescu, V., and Held, L.
Stochastic modelling of the spatial spread of influenza in Germany.
Austrian Journal of Statistics, **35**, 5-20, 2006.
- 26) Held, L., Graziano, G., Frank, C. and Rue, H.
A joint spatial analysis of gastrointestinal infectious diseases.
Statistical Methods in Medical Research, **15**, 465-480, 2006.
- 25) Held, L., Hofmann, M., Höhle, M. and Schmid, V.
A two-component model for counts of infectious diseases.
Biostatistics, **7**, 422-437, 2006.
- 24) Ranyimbo, A.O. and Held, L.
Estimation of the false negative fraction of a diagnostic kit through Bayesian regression model averaging.
Statistics in Medicine, **25**, 653-667, 2006.
- 23) Holmes, C.C. and Held, L.
Bayesian auxiliary variable models for binary and multinomial regression.
Bayesian Analysis, **1**, 145-168, 2006.
Reply to Letter to the Editor in *Bayesian Analysis*, **6**, 357-358, 2011.
- 22) Held, L., Höhle, M. and Hofmann, M.
A statistical framework for the analysis of multivariate infectious disease surveillance counts.
Statistical Modelling, **5**, 187-199, 2005.
- 21) Held, L., Natario, I., Fenton, S.E., Rue, H. and Becker, N.
Towards joint disease mapping.
Statistical Methods in Medical Research, **14**, 61-82, 2005.
- 20) Held, L. and Vollnhals, R.
Dynamic rating of European football teams.
IMA Journal of Management Mathematics, **16**, 121-130, 2005.
- 19) Held, L.
Simultaneous posterior probability statements from Monte Carlo output.
Journal of Computational and Graphical Statistics, **13**, 20-35, 2004.

- 18) Schmid, V. and Held, L.
Bayesian extrapolation of space-time trends in cancer registry data.
Biometrics, **60**, 1034-1042, 2004.
- 17) Held, L. and Ranyimbo, A.O.
A Bayesian approach to estimate and validate the false negative fraction in a two-stage multiple screening test.
Methods of Information in Medicine, **43**, 461-464, 2004.
- 16) Crook, A., Knorr-Held, L. and Hemingway, H.
Measuring spatial effects in time to event data: A case study using months from angiography to coronary artery bypass graft (CABG).
Statistics in Medicine, **22**, 2943-2961, 2003.
- 15) Knorr-Held, L. and Richardson, S.
A hierarchical model for space-time surveillance data on meningococcal disease.
Journal of the Royal Statistical Society, Series C (Applied Statistics), **52**, 169-183, 2003.
- 14) Natario, I. and Knorr-Held, L.
Non-parametric ecological regression and spatial variation.
Biometrical Journal, **45**, 670-688, 2003.
- 13) Carvalho, M.S. and Knorr-Held, L.
Modelling discrete time survival data with random slopes: Evaluating hemodialysis centres.
Statistics in Medicine, **22**, 3543-3555, 2003.
- 12) Knorr-Held, L., Raßer, G. and Becker, N.
Disease mapping of stage-specific cancer incidence data.
Biometrics, **58**, 492-501, 2002.
- 11) Knorr-Held, L. and Rue, H.
On block updating in Markov random field models for disease mapping.
Scandinavian Journal of Statistics, **29**, 597-614, 2002.
- 10) Knorr-Held, L. and Best, N.
A shared component model for detecting joint and selective clustering of two diseases.
Journal of the Royal Statistical Society, Series A, **164**, 73-85, 2001.
- 9) Knorr-Held, L. and Rainer, E.
Projections of lung cancer mortality in West Germany: A case study in Bayesian prediction.
Biostatistics, **2**, 109-129, 2001.
- 8) Knorr-Held, L. and Raßer, G.
Bayesian detection of clusters and discontinuities in disease maps.
Biometrics, **56**, 13-21, 2000.
- 7) Knorr-Held, L.
Bayesian modelling of inseparable space-time variation in disease risk.
Statistics in Medicine, **19**, 2555-2567, 2000.
- 6) Giudici, P., Knorr-Held, L. and Raßer, G.
Modelling categorical covariates in Bayesian disease mapping by partition structures.
Statistics in Medicine, **19**, 2579-2593, 2000.
- 5) Knorr-Held, L.
Dynamic rating of sports teams.
The Statistician (Journal of the Royal Statistical Society, Series D), **49**, 261-276, 2000.

- 4) Knorr-Held, L. and Becker, N.
Bayesian modelling of spatial heterogeneity in disease maps with application to German cancer mortality data.
Allgemeines Statistisches Archiv (Journal of the German Statistical Society), **84**, 121-140, 2000.
- 3) Knorr-Held, L.
Conditional prior proposals in dynamic models.
Scandinavian Journal of Statistics, **26**, 129-144, 1999.
- 2) Knorr-Held, L. and Besag, J.
Modelling risk from a disease in time and space.
Statistics in Medicine, **17**, 2045-2060, 1998.
- 1) Fahrmeir, L. and Knorr-Held, L.
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Biometrical Journal, **56**, 361-362, 2014.
- 4) Held, L. and Riebler, A.
Comment on “Assessing Validity and Application Scope of the Intrinsic Estimator Approach to the Age-Period-Cohort (APC) Problem”
Demography, **50**, 1977-1979, 2013.
- 3) Sabanés Bové, D. and Held, L.
Letter to the Editor “Comment on Cai and Betensky (2003), On the Poisson approximation for hazard regression”
Biometrics, **69**, 795, 2013.
- 2) Hothorn, T., Held, L. and Friede, T.
Biometrical Journal and Reproducible Research
Biometrical Journal, **51**, 553-555, 2009.
- 1) Friede, T., Held, L.
Statistics and Life Sciences 2008 - First Conference of the Central European Network of the International Biometric Society
Biometrical Journal, **51**, 233-234, 2009.

BOOK REVIEWS

- 6) *Richly Parametrized Linear Models: Additive, Time Series, and Spatial Models Using Random Effects.*, J. S. Hodges. Boca Raton: Chapman & Hall/CRC (2014).
In: *Biometrical Journal*, **57**, 364-365, joint with Malgorzata Roos, 2015.
- 5) *Encyclopedia of Biostatistics*, 2nd Edition, Peter Armitage and Theodore Colton, Editors-in-Chief. Chichester, England, John Wiley and Sons, Inc. (2005).
In: *Biometrical Journal*, **49**, 636-637, joint with Siegfried Schach, 2007.
- 4) *Bayesian Statistics VII*, J.M. Bernardo, M.J. Bayarri, J.O. Berger, A.P. Dawid, D. Heckerman, A.F.M. Smith and M. West, Editors. Oxford University Press, Oxford (2004).
In: *Biometrics*, **60**, 841-842, 2004.
- 3) *Spatial Statistics through Applications*, J. Mateu and F. Montes, Editors. WIT Press, Southampton (2002).
In: *Metrika*, **59**, 102-103, 2004.
- 2) *Statistical Models in Epidemiology, the Environment, and Clinical Trials*, M. E. Halloran and D. Berry, Editors. Springer-Verlag, New York (2000).
In: *Biometrics*, **57**, 983-984, joint with Vanessa Didelez, 2001.
- 1) *Analysis of Incomplete Multivariate Data* by J. L. Schafer, Chapman & Hall, London (1997).
In: *Statistics in Medicine*, **19**, 1006-1008, 2000.

SELECTED INVITED PRESENTATIONS AND SEMINARS

August 2021	Perspectives on Scientific Error: Parsing History and Comparing Viewpoints Lorentz Center, NL Title to be announced (Invited Lecture)
June/July 2021	SAVI (Safe, Always-Valid Inference) workshop EURANDOM, NL Title to be announced (Invited Lecture)
June/July 2021	ISBA World Meeting 2021 Online Title to be announced (Keynote Lecture)
June 2020	Advancing knowledge about spatial modeling, infectious diseases, environment and health Fields Institute, Toronto (Online) Endemic-epidemic models with discrete-time serial interval distributions for infectious disease prediction
September 2019	RSS International Conference Belfast, Northern Ireland A new standard for the analysis and design of replication studies (Keynote Lecture, Discussion Meeting)
July 2019	ISCB 2019 Leuven, Belgium Multivariate time series modelling in infectious disease epidemiology
October 2018	Non Clinical Statistics Conference Paris, France Bayesian statistics and reproducibility
September 2018	International Statistics Festival Ulm, Germany Challenging statistical significance – A case for reverse-Bayes
July 2018	International Workshop on Statistical Modelling 2018 Bristol, UK P -values for credibility (Keynote Lecture)
December 2017	O'Bayes17 UT Austin, TX, USA P -values for credibility
November 2017	30-year celebration of the FDM seminar Freiburg Center for Data Analysis and Modelling, Germany Building a Statistical Model: The Endemic-Epidemic Modelling Framework
September 2017	International Workshop on Disease Mapping in Low-Resource Settings

	Lancaster University, UK Spatio-temporal Forecasting in Low Resource Settings
April 2017	InSPiRe Conference Warwick University, UK On P-values and Bayes factors for small samples (Keynote Lecture)
June 2016	i-Like workshop 2016 Lancaster University, UK Approximate Bayesian model selection for clinical prediction.
June 2016	ISBA 2016 Sardinia, Italy Objective Bayesian model selection for Cox regression
April 2016	SIAM Conference on Uncertainty Quantification Lausanne, Switzerland Predictive Model Assessment in Spatio-temporal Models for Infectious Disease Spread
November 2015	13th Armitage Lecture MRC Biostatistics Unit, Cambridge, UK Predictive model assessment in infectious disease epidemiology
September 2015	Autumn meeting on Latent Gaussian Models 2015 Trondheim, Norway Adaptive prior weighting in generalized regression
September 2015	Doctoral Program in Statistics and Applied Probability Seminar Leukerbad, Switzerland Objective Bayesian model selection ($3 \times 1.5h$)
August 2015	ISCB 2015 Utrecht, Netherlands Combining social contact data with spatio-temporal models for infectious diseases
February 2015	Workshop “Nonparametric Analyses of complex time to event data” Ulm, Germany Objective Bayesian model selection in the Cox model
November 2014	Stochastics Meeting Lunteren, Lunteren, Netherlands Objective Bayesian Model Selection in Regression ($2 \times 1.5h$)
November 2013	International Hexa-Symposium on Biostatistics, Bioinformatics, and Epidemiology, Hasselt, Belgium Modelling power-law spread of infectious diseases

October 2013	Workshop: Evaluating probabilistic forecasts of multivariate quantities, Heidelberg, Germany Calibration tests for combined categorical forecasts
October 2013	6th Trondheim Symposium in Statistics, Selbu, Norway Approximate Bayesian model selection with the deviance statistic
June 2013	IX Congress of IBS- Italian Region Brixen, Italy Power law approximations of movement network data for modelling infectious disease spread
November 2012	IBS British & Irish Region GM: Generalized Linear Models 40 years, Rothamsted, UK All you need is the deviance - Objective Bayesian model selection in GLMs
September 2012	Structure and uncertainty workshop, Bristol, UK Objective Bayesian model selection based on test statistics
September 2012	VI International Workshop on Spatio-Temporal Modelling (METMAVI), Guimaraes, Portugal Movement Network Data and the Spatiotemporal Spread of Infectious Diseases
June 2012	ISBA 2012 World Meeting, Kyoto, Japan Assessing the Impact of a Movement Network on the Spatiotemporal Spread of Infectious Diseases
April 2012	3rd SIMID Workshop, Hasselt, Belgium Assessing the Impact of a Movement Network on the Spatiotemporal Spread of Infectious Diseases
September 2011	Statistical Modelling for Biological and Environmental Systems (SMBES) 2011 Summer School, Venice, Italy Statistical models for the temporal and spatial evolution of biomedical data
April 2011	Memorial for Julian Besag FRS, 1945-2010, Bristol, UK Bayesian Age-Period-Cohort Analysis
March 2011	InFER2011 (Inference For Epidemic-related Risk), Warwick, UK Spatio-temporal Modelling of Infectious Disease Surveillance Data
August 2010	COMPSTAT Conference, Paris, France Spatio-temporal disease mapping using INLA
June 2010	Conference on Statistical Methods for Outbreak Detection, Milton Keynes, UK A model-based view on outbreak detection.
July 2009	TIES 09 Conference, Bologna, Italy

	Spatio-temporal disease mapping using INLA
June 2009	Workshop on Statistical Computing, Reimsburg, Germany INLA in action: Bayesian inference without (MCMC) tears?
June 2009	First Workshop on Spatio-temporal Disease Mapping, Valencia, Spain Spatio-temporal disease mapping using INLA
May 2008	Conference on “Statistics for Public Health Surveillance”, Milton Keynes, UK Multivariate modelling of infectious disease surveillance data
January 2008	Leopoldina-Symposium “Recent Challenges for Statistics in Biosciences - 100 Years after Gustav Zeuner”, Freiberg, Germany Markov Chain Monte Carlo for Bayesian Inference
August/September 2007	ISI 2007 satellite meeting, Porto, Portugal Modelling the spread in space and time of an airborne plant disease
August 2007	GisVet 07, Kopenhagen, Denmark Statistical approaches to the temporal and spatio-temporal surveillance of infectious diseases (Keynote lecture, joint with Michael Höhle).
July 2006	21st International Workshop on Statistical Modelling, Galway, Ireland Quantitative assessment of probabilistic forecasts with applications in epi- demiology.
May 2006	Bayesian Inference in Complex Stochastic Systems, Warwick, UK Quantitative assessment of probabilistic forecasts with applications in epi- demiology.
October 2005	ROeS Seminar 2005, Graz, Austria “Parameter- and observation-driven space-time interaction in epidemiol- ogy”
October 2005	GEOMED 2005, Cambridge, UK “Spatial variation of underreporting in infectious disease surveillance data”
July 2005	European young statisticians training camp 25th European Meeting of Statisticians, Oslo, Norway “Statistical models and methods for spatial dependence”
April 2005	ETH Zürich, Department of Statistics, Switzerland “A two-component model for counts of infectious diseases”
August 2004	COMPSTAT 2004, Prague, Czech Republic “Simultaneous inference in risk assessment; a Bayesian perspective”
July 2004	6th World Congress of the Bernoulli Society, Barcelona, Spain “Statistical challenges in space-time surveillance of infectious diseases”
March 2004	Lancaster University, Department of Mathematics and Statistics, UK

	“Simultaneous posterior probability statements from Monte Carlo output”
June 2003	International Biometric Society - Nordic Regional Meeting, Uppsala, Sweden “Towards joint disease mapping”
October 2002	10th Annual Meeting der Belgian Statistical Society, Kerkrade, Netherlands “Towards on-line disease surveillance”
August 2001	ISCB 2001, Stockholm, Sweden “A hierarchical model for space-time surveillance data on meningococcal disease”
August 2001	European Meeting of Statisticians, Funchal, Madeira, Portugal “Disease mapping of stage-specific cancer incidence data”
July 2001	Mixtures 2001, Hamburg, Germany “A hierarchical model for space-time surveillance data on meningococcal disease”
February 2001	University of Warwick, Department of Statistics, UK “Disease mapping of stage-specific cancer incidence data”
November 2000	Highly Structured Stochastic Systems (HSSS) closing workshop Luminy, France “Some remarks on Gaussian Markov random field models for disease mapping”
October 2000	University of Bristol, Department of Mathematical Sciences, UK “Gaussian Markov random fields: Theory and applications”
June 2000	University of Kent, Institute of Mathematics, Statistics and Actuarial Science, UK “Hierarchical modelling of infectious disease incidence”
May/June 2000	International Society for Bayesian Analysis Sixth World Meeting (ISBA 2000) Heraklion, Greece “A shared component model for detecting joint and selective clustering of two diseases”
May 2000	Workshop on Hierarchical Modeling in Environmental Statistics (WHIES) Columbus, Ohio, USA Group discussion leader
February 2000	80 Years Anniversary Conference of the Finnish Statistical Society Helsinki, Finland “Joint disease mapping”
December 1999	“Analysis and interpretation of disease clusters and ecological studies” RSS International Conference, London, UK “Shared component models for detecting joint and selective clustering of two diseases”
December 1999	Workshop “Design and analysis of infectious disease studies”

- Mathematical Research Institute Oberwolfach, Germany
"Hierarchical modelling of infectious disease incidence"
- November 1999 *INFORMS* 1999, Philadelphia, USA
"Bayesian analysis of binomial time series with structural changes"
- December 1998 International Biometric Conference (IBC) 1998, Cape Town, South Africa
"Bayesian modelling of inseparable space-time variation in disease risk"
- April 1998 INSERM workshop, Paris, France
"Space-time models"
- September 1997 ROeS Seminar 1997, Vienna, Austria
"Bayesian analysis of dynamic duration models by Markov chain Monte Carlo"

PHD STUDENTS

- 1) Günter Raßer: Clustering Partition Models for Discrete Structures with Applications in Geographical Epidemiology. Ludwig-Maximilians-Universität München (2003)
- 2) Angela Mary Crook: Explaining Area Effects on Time to Coronary Revascularisation and Clinical Outcomes in Patients with Coronary Artery Disease. Imperial College London (2004)
- 3) Anna L Hansell: Temporal Variations in COPD Mortality in England & Wales in Relation to the 1956 Clean Air Act. Imperial College London (2004)
- 4) Volker Schmid: Bayesian Space-Time Modelling in Epidemiology (in German). Ludwig-Maximilians-Universität München (2004)
- 5) Argwings Otieno Ranyimbo: Application of Bayesian Methods in Medical Classification. Ludwig-Maximilians-Universität München (2006)
- 6) Mathias Hofmann: Statistical Models for Infectious Disease Surveillance Counts. Ludwig-Maximilians-Universität München (2007)
- 7) Andrea Riebler: Multivariate Age-Period-Cohort Models. Universität Zürich (2010)
- 8) Mareike Kohlmann: Discriminant Analysis for Longitudinal Data with Application in Medical Diagnostics. Ludwig-Maximilians-Universität München (2010)
- 9) Michaela Paul: Statistical Analysis of Multivariate Infectious Disease Surveillance Time Series. Universität Zürich (2010)
- 10) Birgit Schrödle: Statistical Analysis of Spatio-Temporal Veterinary Surveillance Data: Applications of Integrated Nested Laplace Approximations. Universität Zürich (2011)
- 11) Julia Braun: Predictive Crossvalidation and Baseline Correction in Mixed Models for Longitudinal Data. Universität Zürich (2013)
- 12) Daniel Sabanés Bové: Objective Bayesian Variable and Function Selection with Hyper- g Priors. Universität Zürich (2014)
- 13) Rafael Sauter: Generalised Linear Mixed Models: Likelihood and Bayesian Computations with Applications in Epidemiology. Universität Zürich (2015)
- 14) Wei Wei: Calibration tests to evaluate probabilistic forecasts and temporal modelling to monitor infectious diseases. Universität Zürich (2015)
- 15) Sebastian Meyer: Statistical methods for the spatio-temporal modelling of infectious disease spread. Universität Zürich (2016)
- 16) Isaac Gravestock: Evaluating the Operating Characteristics of Bayesian Methods for Clinical Biostatistics. Universität Zürich (2017)
- 17) Manuela Ott: Objective Bayesian Calibration of P -Values. Universität Zürich (2018)
- 18) Rachel Heyard: Bayesian Variable Selection for Clinical Prediction Models. Universität Zürich (2019)
- 19) Johannes Bracher: Statistical Modelling and Forecasting of Infectious Disease Surveillance Counts. Universität Zürich (2020)
- 20) Samuel Pawel
- 21) Charlotte Michelaud
- 22) Maria Dunbar