

# CURRICULUM VITAE

## LEONHARD HELD

March 27, 2018

### PERSONAL DATA

Born: July 15, 1966, Erlangen, Germany.

Nationality: German.

Married, three children.

#### Business Address:

University of Zurich  
Epidemiology, Biostatistics and Prevention  
Institute  
Department of Biostatistics  
Hirschengraben 84  
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<http://scholar.google.ch/citations?user=KKqXo7sAAAAJ>

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Berghaldenstrasse 31  
8330 Pfäffikon ZH  
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Phone: 0041 44 310 2084

### EDUCATION

Habilitation	2000	LMU Munich	Statistics
Promotion (PhD, "summa cum laude")	1997	LMU Munich	Statistics
Diplom (MSc, "mit Auszeichnung")	1993	LMU Munich	Statistics

### PROFESSIONAL EXPERIENCE

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

Assistant Professor (“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**

Spatial and Spatio-temporal Epidemiology  
Analysis of Time Series and Longitudinal Data  
Infectious Disease Epidemiology  
Biostatistics, Medical Statistics  
Bayesian Biostatistics  
Making and Evaluating Probabilistic Predictions  
Statistical Inference  
Model Selection

## **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](http://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:

Editor for Epidemiology and Clinical Science, *Annals of Applied Statistics*.

Associate Editor, *Annals of Applied Statistics*, since 2017.

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: *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

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:

- 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):

- 85) 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*, early view: doi:10.1002/jrsm.1285.
- 84) Ferkingstad, E., Held, L., Rue, H.  
Fast and accurate Bayesian model criticism and conflict diagnostics using R-INLA.  
*STAT*, **6**, 331-344, 2017.
- 83) Held, L., Meyer, S. and Bracher, J.  
Probabilistic forecasting in infectious disease epidemiology: The thirteenth Armitage lecture.  
*Statistics in Medicine*, **36**, 3443-3460, 2017.
- 82) Held, L. and Ott, M. On  $P$ -values and Bayes factors. *Annual Review of Statistics and Its Applications*, **5**, 393-419, 2018.
- 81) Gravestock, I. and Held, L.  
Adaptive power priors with empirical Bayes for clinical trials.  
*Pharmaceutical Statistics*, **16**(5), 349-360, 2017.
- 80) 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.

- 79) 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*, 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., Gritmit, 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., Gritmit, 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.  
Dynamic discrete-time duration models.  
*Sociological Methodology*, **27**, 417-452, 1997.

Journal Articles (Substantive Research):

- 55) Wirsching, H.-G., [...], Held, L., [...], Weller, M.  
Bevacizumab plus hypofractionated radiotherapy versus radiotherapy alone in elderly patients with glioblastoma: the randomized, open-label, phase II ARTE trial.  
*Annals of Oncology*, accepted.
- 54) Matthes, K L, Limam, M, Pestoni, G., Held, L., Korol, D. and Rohrmann, S.  
Impact of comorbidities at diagnosis on prostate cancer treatment and survival.  
*Journal of Cancer Research and Clinical Oncology.*, , **144** (4), 707-715.
- 53) Stämpfli, S., Özkartal, T., Hagenbuch, N., [...], Held, L., Tanner, F. C.  
Pericardial effusion unrelated to surgery is a predictor of mortality in heart transplant patients.  
*Cardiology Journal*, accepted.
- 52) Jensen, K.O., Heyard, R., Schmitt, D., Mica, L., Ossendorf, C., Simmen, H.P., Wanner, G.A., Werner, C.M.L., Held, L., Sprengel, K.  
Which pre-hospital triage parameters indicate a need for immediate evaluation and treatment of severely injured patients in the resuscitation area?  
*European Journal of Trauma and Emergency Surgery*, accepted, <http://dx.doi.org/doi:10.1007/s00068-017-0889-0>.
- 51) Manser, C., Kraus, A., Frei, T., Rogler, G., Held, L.  
The impact of cold spells on incidence of infectious gastroenteritis and relapse rates of inflammatory bowel disease: A retrospective controlled observational study  
*Inflammatory Intestinal Diseases*, **2**, 124-130, 2017.
- 50) Ladina Erhart, Simon Stämpfli, Niels Hagenbuch, [...], Held L., Felix C. Tanner  
Prognostic power of NT-proBNP in left ventricular non-compaction cardiomyopathy  
*International Journal of Cardiology*, **236**, 321-327, 2017.
- 49) Panczak, R., Moser, A., Held, L., Jones P. A. Rühli, F. J. and Staub, K.  
A tall order: small area mapping and modelling of adult height among Swiss male conscripts  
*Economics and Human Biology*, **26**, 61-69, 2017.
- 48) Vavricka, S., [...], Held L., [...], Zeitz, J.  
Protocol for a prospective, controlled, observational study to evaluate the influence of hypoxia on healthy volunteers and patients with inflammatory bowel disease: The Altitude IBD Study  
*BMJ Open*, 2017, **7**(1): e013477.
- 47) Vial, F., Wei, W. and Held L.  
Methodological challenges to multivariate syndromic surveillance: a case study using Swiss animal health data. *BMC Veterinary Research*, 2016, **12**: 288.
- 46) Jensen, K. O., Held, L., Kraus, A., [...], Sprengel, K.  
The impact of mild induced hypothermia on the rate of transfusion and the mortality in severely injured patients - a retrospective multi-centre study  
*European Journal of Medical Research*, **21**, 37, 2016.
- 45) Sauter, R., Huang, R., Ledergerber, B., [...], Günthard, H. F., Held, L., and the Swiss HIV cohort study.  
CD4/CD8 ratio and CD8 counts predict CD4 response in HIV-1 infected drug naive and in patients on cART  
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  - 28) Saguner, A. M., Ganahl, S., Baldinger, S. H., Kraus, A., [...], Held, L., Brunckhorst, C. B., Duru, F.  
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## CHAPTERS AND DISCUSSIONS

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- 10) Held, L. and Rue, H.  
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In: *Handbook of Spatial Statistics*, A. Gelfand, P. Diggle, M. Fuentes, P. Guttorp, Editors. Chapman & Hall/CRC Press, 201-216, 2010.
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- 5) Knorr-Held, L.  
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In: *Highly Structured Stochastic Systems*, P. Green, N. Hjort and S. Richardson, Editors. Oxford University Press, 260-264, 2003.

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- 2) Knorr-Held, L.  
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#### SHORT COMMUNICATIONS, COMMENTS, EDITORIALS, LETTERS

- 9) 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.
- 8) Held, L.  
An objective Bayes perspective on  $P$ -values  
*Biometrical Journal*, 2017, doi:10.1002/bimj.201700068.
- 7) Held, L. and Muff, S.  
Comment on Diggle and Giorgi: Prevalence mapping and disease misclassification  
*Journal of the American Statistical Association*, **111**, 1108-1110, 2016.
- 6) Held, L., Bornkamp, B. and Müller, P.  
Bayesian Biostatistics 2014 – Satellite conference of the International Biometric Conference  
*Biometrical Journal*, **57**, 939-940, 2015.
- 5) Held, L., Menezes, R. and Sousa, I.  
METMAVI–VIth International Workshop on Spatio-Temporal Modelling  
*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.  
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*Biometrical Journal*, **51**, 553-555, 2009.

- 1) Friede, T., Held, L.  
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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).  
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- 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

December 2017	O'Bayes17 UT Austin, TX, USA <i>P</i> -values for credibility
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 <i>P</i> -values and Bayes factors for small samples
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, Reims, 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, Copenhagen, 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, Universität Zürich
- 17) Manuela Ott, Universität Zürich
- 18) Rachel Heyard, Universität Zürich
- 19) Johannes Bracher, Universität Zürich