

PUBLICATION LIST

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ORCID iD: 0000-0001-7106-9732: 150 Publications



Web of Science ResearcherID: IQR-8777-2023: 2,357 citations, H-index: 25



Google Scholar profile: 4,431 citations, H-index: 34

RESEARCH PAPERS IN PEER-REVIEWED JOURNALS

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- [2] Klinkhammer H, Staerk C, Maj C, Krawitz P and **Mayr A**. Genetic Prediction Modeling in Large Cohort Studies via Boosting Targeted Loss Functions. *Statistics in Medicine.* 2024; 43(28):5412-30; doi: 10.1002/sim.10249.
- [3] Thudium M, Braun L, Strömer A, **Mayr A**, Menzenbach J, Saller T, Soehle M, Kornilov E and Hilbert T. Cerebral Overperfusion Despite Reduced Cortical Metabolism Is Associated with Postoperative Delirium in Cardiac Surgery Patients: A Prospective Observational Study. *Journal of Clinical Medicine.* 2024; 13(21): 6605.
- [4] Maciaczyk J, Bara G, Basilaia B, Abuassi M, Dietz BE, Muga D, **Mayr A**, Staerk C, Karakostas P, and Schäfer VS. A Prospective Single-center Pilot Study on the Use of Closed-loop Spinal Cord Stimulation to Treat Chronic Pain Associated With Raynaud's Phenomenon. *Neuromodulation: Technology at the Neural Interface.* 2024; 27(8):1457-69; doi: 10.1016/j.neurom.2024.08.005.
- [5] Staerk C, Klinkhammer H, Wistuba T, Maj C, **Mayr A**. Generalizability of polygenic prediction models: how is the R2 defined on test data? *BMC Medical Genomics.* 2024; 17(1): 132.
- [6] Staerk C, Byrd A, **Mayr A**. Recent methodological trends in Epidemiology: No need for data-driven variable selection? *American Journal of Epidemiology.* 2024; 193(2): 370–376.
- [7] Stasinopoulos M, Kneib T, Klein N, **Mayr A**, Heller G Z. Generalized Additive Models for Location, Scale and Shape: A Distributional Regression Approach, with Applications. *Cambridge University Print.* 2024; 56.
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- [10] Klein C R, Stoppenbrink D, Geier J, **Mayr A**, Stark H. The relative area for sublingual varices reliability measurement: a diagnostic study. *BMC Oral Health.* 2023; 23(1): 1-8.
- [11] Speller J, Staerk C, Gude F, **Mayr A**. Robust gradient boosting for generalized additive models for location, scale and shape. *Advances in Data Analysis and Classification.* 2023; 1-20.
- [12] Schäfer V S, Recker F, Kretschmer E, Putensen C, Ehrentraut S F, Staerk C, Fleckenstein T, **Mayr A**, Seibel A, Schewe JC, Petzinna S M. Lung Ultrasound in Predicting Outcomes in Patients with COVID-19 Treated with Extracorporeal Membrane Oxygenation. *Viruses.* 2023; 15(9): 1796.

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- [24] Strömer A, Klein N, Staerk C, Klinkhammer H, **Mayr A**. Boosting Multivariate Structured Additive Distributional Regression Models. *Statistics in Medicine*. 2023; 42(11): 1779–1801.
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OTHER PUBLICATIONS

SHORT-PAPER IN PROCEEDINGS (PEER-REVIEWED)

- [142] Griesbach C, **Mayr A**, Bergherr E. Variable Selection and Allocation in Joint Models via Gradient Boosting Techniques. *Proceedings of the 36th International Workshop on Statistical Modelling*. Trieste, Italy, July 18-22, 2022, ed. by N. Torelli, R. Bellio and V. Muggeo, 187–192.
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- [145] Strömer A, Weinhold L, Staerk C, Titze S, Klein N, **Mayr A**. Enhanced variable selection for distributional regression. *Proceedings of the 35th International Workshop on Statistical Modelling*. Bilbao, Basque Country, Spain, July 20-24, 2020, ed. by I. Irigoien, D.-J. Lee, J. Martínez-Minaya and M. X. Rodríguez-Álvarez, 233–237.
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- [150] Waldmann E, Taylor-Robinson D, Klein N, Kneib T, Schmid M, **Mayr A**. Boosting joint models for longitudinal and time-to-event data. *Proceedings of the 31st International Workshop on Statistical Modelling*. Rennes, France, July 4-8, 2016, ed. by J. Dupuy and J. Josse, 313–318.
- [151] **Mayr A**, Hofner B, Schmid M. Boosting the discriminatory power of survival models via the C-index and stability selection. *Proceedings of the 30th International Workshop on Statistical Modelling*. Linz, Austria, July 6-10, 2015, ed. by H. Friedl and H. Wagner, 296–301.
- [152] **Mayr A**, Faschingbauer F, Schmid M. Boosting Sonographic Birth Weight Estimation. *Proceedings of the 28th International Workshop on Statistical Modelling*. ISBN 978-88-69251-47-8. Palermo, Italy, July 8-12, 2013, ed. by V. M. R. Muggeo, V. Capursi, G. Boscaino and G. Lovison, 269–274.
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- [154] **Mayr A**, Hothorn T, Fenske N. Fitting Prediction Intervals for BMI Patterns in Childhood by Boosting Quantile Regression. *Proceedings of the 27th International Workshop on Statistical Modelling*. ISBN 978-80-263-0250-6. Prague, Czech Republic, July 15-20, 2012, ed. by A. Komarek and S. Nagy, 209–214.
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THESES

- [156] **Mayr A**. Boosting Beyond the Mean - Extending Component-wise Gradient Boosting Algorithms to Multiple Dimensions. Dissertation, FAU Erlangen, 2013. Dr. Hut Verlag, München: ISBN 9783843912075.
- [157] **Mayr A**. Prediction Inference with Ensemble Methods. Diplomarbeit, Mathematisch-Naturwissenschaftliche Fakultät, LMU München, 2010.

SOFTWARE

`snpboost` [author]

Klinkhammer H, Staerk C, Maj C, Krawitz P M and **Mayr A**. `snpboost`: A statistical boosting framework for polygenic risk scores based on large-scale genotype data.

R functions implementing a batch-based component-wise gradient boosting algorithm on large-scale genotype data.

Development version on GitHub: <https://github.com/hklinkhammer/snpboost>

`gamboostLSS` [author]

Hofner B, **Mayr A**, Fenske N, Schmid M. `gamboostLSS`: Boosting Methods for GAMLSS models. R package version 1.1-2.

R add-on package implementing a multi-dimensional component-wise gradient boosting algorithm to fit Generalized Additive Models for Location, Scale and Shape (GAMLSS).

Stable version on CRAN: <http://CRAN.R-project.org/package=gamboostLSS>.

Development version on GitHub: <https://github.com/boost-R/gamboostLSS>

`mboost` [contributor]

Hothorn T, Buehlmann P, Kneib T, Schmid M, Hofner B. (2016). `mboost`: Model-Based Boosting, R package version 2.7-0.

Main R add-on package implementing a general gradient boosting algorithm to estimate statistical models.

Stable version on CRAN: <http://CRAN.R-project.org/package=mboost>.

Development version on GitHub: <https://github.com/boost-R/mboost>

`betaboost` [author, maintainer]

Mayr A, Weinhold L, Hofner B, Schmid M. `betaboost`: Boosting Beta Regression. R package version 0.0-1.

R add-on package implementing user friendly wrapper functions to boost beta regression models via `mboost` and `gamboostLSS` in a unified framework.

Stable version on CRAN: <http://CRAN.R-project.org/package=betaboost>.

Development version on GitHub: <https://github.com/boost-R/betaboost>

`SubBoost` [author]

Staerk C, **Mayr A**. `SubBoost`: Randomized boosting with multivariable base-learners. R package version 0.1-1.

R add-on package implementing the Adaptive Subspace Boosting algorithm as well as the Random Subspace Boosting algorithm.

Development version on GitHub: <https://github.com/chstaerk/SubBoost>

JMboost [author, maintainer]

Waldmann E, **Mayr A**. JMboost: Boosting Joint Models for Longitudinal and Time-to-Event Outcomes. R package version 0.1-2.

R add-on package implementing a basic component-wise gradient boosting algorithm to fit Joint Models simultaneously for a longitudinal and a time-to-event outcome.

Development version on GitHub: <https://github.com/mayrandy/JMboost>

TALKS

INVITED KEYNOTE TALKS

Statistical boosting for biomedical research: strengths and limitations. *XIX Conferencia Española de Biometría (CEB)*. June 2023 – Vigo, Spain.

Advanced regression modelling with statistical learning. *European Eye Epidemiology (E3) Meeting*. June, 2022 – Bonn, Germany.

Prediction accuracy, sparsity and clinical reality: a case study on statistical learning. *TU GRAZ, Austrian-Slovenian Joint Statistical Days*. April 2022 – Graz, Austria.

INVITED TALKS AND SEMINAR TALKS

Enhanced variable selection for boosting sparser and less complex models in distributional regression. *COMPSTAT 2024*. August 2024 – Gießen, Germany.

Genetic prediction modelling in large cohort studies. *Lusófona University and ProChild CoLAB*. July 2024 – Porto, Portugal.

Statistical Boosting, complex models and genetic predictions. *Universität Göttingen*. May 2024 – Göttingen, Germany.

Boosting polygenic risk scores based on large cohort data. *Universidad del País Vasco*. March 2024 – Bilbao, Spain.

Statistical boosting for advanced prediction modelling. *Departamento de Métodos Cuantitativos, Facultad de Economía y Empresa (Sarriko)*. February 2024 – Bilbao, Spain.

Statistical boosting for prediction, advanced statistical modelling and clinical reality. *Dipartimento di Statistica e Metodi Quantitativi*. January 2024 – Milano, Italy.

Statistical learning, advanced statistical modelling and clinical reality. *Departamento de Estatística Universidade Federal de Pernambuco*. October 2023 – Recife, Pernambuco, Brasil.

Methodological aspects concerning the development and validation of clinical prediction models for PPD with a focus on statistical learning. *2nd Riseup-PPD International Conference*. September 2023 – Sofia, Bulgaria.

Statistical boosting, advanced statistical modeling and clinical reality. *Centro de Estatística e Aplicações Universidade de Lisboa*. July 2023 – Lisboa, Portugal.

Statistical learning, advanced statistical modelling and clinical reality. *IBE Munich*. June 2023 – Munich, Germany.

Enhanced variable selection via statistical boosting. *Spanish Conference on Statistics and Operational Research (SEIO)*. July 2022 – Granada, Spain.

Recent extensions to statistical boosting. *TU Dortmund*. October 2021 – Dortmund, Germany.

Boosting regression models for multiple endpoints. *Universität Heidelberg*. July 2019 – Heidelberg, Germany.

Boosting regression models for multiple endpoints. *Universitet i Oslo*. May 2019 – Oslo, Norway.

Boosting regression models for multiple endpoints. *DAGSTAT 2019*. March 2019 – Munich, Germany.

Statistical boosting for time-to-event data: An overview on recent developments. *CMStatistics 2018*. December 2018 – Pisa, Italy.

Boosting Joint Models for Longitudinal and Time-to-Event Data. *Abteilung für Epidemiologie und Biometrie, Universität Oldenburg*. November 2018 – Oldenburg, Germany.

An introduction to boosting Generalized Additive Models for Location, Scale and Shape. *Department of Statistics, Universität Linz*. March 2018 – Linz, Austria.

A non-technical introduction to boosting distributional regression models with an application to health-related quality of life outcomes. *IBE Munich*. May 2017 – Munich, Germany.

An introduction to boosting distributional regression models. *Department of Statistics, Munich*. May 2017 – Munich, Germany.

Boosting Joint Models for longitudinal and time-to-event outcomes. *CMStatistics*. December 2016 – Seville, Spain.

An introduction to boosting generalized additive models for location, scale and shape. *Universidad de Buenos Aires*. February 2016 – Buenos Aires, Argentina.

Boosting distributional regression models for multivariate responses. *ERCIM Working Group on Computing and Statistics*. December 2015 – London, UK.

Boosting Beyond the Mean and Permutation – Testing for Reliability. *ERCIM Working Group on Computing and Statistics*. December 2014 – Pisa, Italy.

Boosting the Concordance Index for Survival Data. *University of Essex*. October 2014 – Colchester, UK.

A non-technical Introduction to Boosting GAMLSS. *Interdisciplinary Research Training Group Scaling Problems in Statistics*. May 2013 – Universität Göttingen.

More Than Just the Mean: Flexible Statistical Modelling via GAMLSS. *DAGStat 2013*. March 2013 – Universität Freiburg.

Fitting Prediction Intervals by Boosting Quantile Regression. *ERCIM Working Group on Computing and Statistics*. December 2011 – London, UK.

Prognoseintervalle und Quantils-Boosting: Eine Simulationsstudie. *Institut für Statistik*. June 2010 – Ludwig-Maximilians-Universität München.

CONTRIBUTED TALKS

A copula boosting approach for dependent censoring. *Statistical Computing*. July 2024 – Schloss Reisenburg, Germany.

The evaluation of clinical prediction models – methodological pitfalls illustrated with an application to peripartum depression. *70th Biometric Colloquium*. February 2024 – Luebeck, Germany.

Using the R^2 measure on test data? The evaluation of polygenic prediction models across populations. *Statistical Computing*. July 2023 – Schloss Reisenburg, Germany.

Teaching Probabilities and risks to medical students with a special focus on communication with patients. *11th International Conference on Teaching Statistics*. September 2022 – Rosario, Argentina.

Boosting polygenic risk score. *Statistical Computing*. July 2022 – Schloss Reisenburg, Germany.

Boosting health-related quality of life via distributional beta regression. *International Workshop on Statistical Modelling*. July 2019 – Guimaraes, Portugal.

Distributional and quantile regression for quality control in fetal weight estimation. *CEN-ISBS: International Biometric Society*. August 2017 – Vienna, Austria.

Boosting distributional regression models for multivariate responses. *International Workshop on Statistical Modelling*. July 2017 – Groningen, Netherlands.

Boosting distributional regression models for multivariate responses. *Statistical Computing*. July 2016 – Schloss Reisenburg, Günzburg.

Distributional and quantile regression for quality control in fetal weight estimation. *International Workshop on Statistical Modelling*. July 2016 – Rennes, France.

Boosting distributional regression models for multivariate responses. *DAGStat 2016*. March 2016 – Göttingen.

Analysing measurement errors via boosting location and scale models. *Statistical Computing*. July 2015 – Schloss Reisenburg, Günzburg.

Boosting the discriminatory power of survival models via the C-index and stability selection. *International Workshop on Statistical Modelling*. July 2015 – Linz, Austria.

Boosting the Concordance Index for Survival Data. *Statistical Computing*. July 2014 – Schloss Reisenburg, Günzburg.

Estimation of Biomarker Combinations by Boosting the Concordance Index for Survival Data. *Biometrisches Kolloquium*. March 2014 – Bremen.

Boosting Sonographic Birth Weight Estimation. *International Workshop on Statistical Modelling*. July 2013 – Palermo, Italy.

Boosting Sonographic Birth Weight Estimation. *Statistical Computing*. June 2013 – Schloss Reisenburg, Günzburg.

Fitting prediction intervals for BMI patterns in childhood by boosting longitudinal quantile regression. *International Workshop on Statistical Modelling*. July 2012 – Prague, Czech Republic.

Boosting Generalized Additive Models for Location Scale and Shape. *Statistical Computing*. June 2012 – Schloss Reisenburg, Günzburg.

Boosting Generalized Additive Models for Location Scale and Shape. *International Workshop on Statistical Modelling*. July 2011 – Valencia, Spain.

Prediction Intervals and Quantile Boosting: A Simulation Study. *Statistical Computing*. June 2010 – Schloss Reisenburg, Günzburg.

SHORT COURSES

Workshop Prediction Modelling via Statistical Boosting and Distributional Regression. *Universidad Nacional de Mar del Plata and Universidad Nacional de Córdoba*. June 2024 – Mar del Plata and Córdoba, Argentina.

Workshop Linear Mixed Models in R - Short Time Scientific Mission (together with Prof. Bruno de Sousa). *COST Action CA18138, University of Coimbra*. October 2022 – Coimbra, Portugal.

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