Comput Stat (2018) 33:1125–1126
https://doi.org/10.1007/s00180-018-0823-x

EDITORIAL

Proceedings of Reisensburg 2014–2015

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Published online: 4 June 2018

Reisensburg Castle on the beautiful Danube river near the historic cities of Günzburg and Ulm (Germany) hosts the annual workshop 'Statistical Computing'. The conference is traditionally organized by the working group 'Biostatistics' of the German Classification Society (GfKL–Data Science Society), by the working group 'Statistical Computing' of the German Region of the International Biometric Society, and by the German Society of Medical Informatics, Biometry and Epidemiology (GMDS). Covered are recent topics in biostatistics and bioinformatics, with a special focus on applications regarding the computational aspects of these fields of research. The long tradition of this informal workshop has only recently been supplemented by special issues covering current aspects of statistical computing, like high-dimensional data analysis, machine learning, variable selection and visualization (Binder et al. 2013, 2014; Kestler and Schmid 2015). This special issue contains selected contributions to the 46th and 47th Statistical Computing conferences, which took place at Reisensburg castle from July 20th to 23rd 2014 and from July 19th to 22nd 2015. All articles underwent the regular reviewing process of *Computational Statistics*.

Herbrandt et al. (2018) present a model for simulating normal forces arising during a grinding process in cement for single diamond grinding, including a method for fast

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calculation of force and removed volume. Model parameters are adapted via model-based optimization with a Kriging approach for noisy optimization.

Kuhn et al. (2018) propose a machine learning approach to detect small disease-related somatic structural variants in exome sequencing data. Using both simulated data and exome data of patients with acute myeloid leukemia (AML), the authors apply various types of screening and classification methods (e.g., k-nearest neighbour and elastic net) to evaluate the proposed algorithm's performance. The methods are implemented in the R package svmod.

Surmann et al. (2018) deal with the topic of describing energy networks in electrical transmission systems. In a stepwise approach, the authors fit a random field meta model over the transmission system that is used to spatially smooth measurements across observed locations (nodes) in the network. Unobserved locations in the network are predicted from subsets of observable locations using best unbiased linear predictions with a covariance matrix that is reconstructed from neighbourhood relationships via graph kernels.

Villmann et al. (2018) propose a variant of learning vector quantization optimizing directly the area under the receiver operating characteristics (ROC) curve for binary classification problems as an alternative to solely utilizing classification accuracy. For this purpose, a cost function is presented, which describes the area under the ROC curve in terms of the sum of local discriminant functions. The approach is illustrated on various artificial and real-world data sets.

References

Binder H, Kestler HA, Schmid M (2013) Editorial: proceedings of Reisensburg 2010. Comput Stat 28(1):1–3

Binder H, Kestler HA, Schmid M (2014) Editorial: proceedings of Reisensburg 2011. Comput Stat 29(1–2):1–2

Herbrandt S, Ligges U, Pinho Ferreira M, Kansteiner M, Biermann D, Tillmann W (2018) Model based optimization of a statistical simulation model for single diamond grinding. Comput Stat. https://doi.org/10.1007/s00180-016-0669-z

Kestler HA, Schmid M (2015) Proceedings of Reisensburg 2013. J Stat Comput Simul 85(1):1–2

Kuhn M, Stange T, Herold S, Thiede C, Roeder I (2018) Finding small somatic structural variants in exome sequencing data: a machine learning approach. Comput Stat. https://doi.org/10.1007/s00180-016-0674-2

Surmann D, Ligges U, Weihs C (2018) Predicting measurements at unobserved locations in an electrical transmission system. Comput Stat. https://doi.org/10.1007/s00180-017-0734-2

Villmann T, Kaden M, Hermann W, Biehl M (2018) Learning vector quantization classifiers for ROC-optimization. Comput Stat. https://doi.org/10.1007/s00180-016-0678-y