ROBUST 2024, 23rd International Statistical Conference

Ondřej Vozár[1] | *Czech Statistical Office, Prague, Czech Republic*

The 23rd event of the well-established biennial statistical conference ROBUST 2024 took place in the historical town Bardějov (Slovak Republic) during September 8–13, 2024. It was organized by a joint effort of the Expert Group of Computational Statistics of the Czech Mathematical Society (Section of the Union of Czech Mathematicians and Physicists), Department of Probability and Mathematical Statistics of the Faculty of Mathematics and Physics, Charles University, Prague, Czech Statistical Society, and Slovak Statistical and Demographic Society. It is important to note that ROBUST was originally scheduled in Bardějov in 2020. However, it was postponed twice due to the Covid-19 pandemics in 2020 and the relative proximity of the battlefields of the conflict in Ukraine in 2022. This year it has been merged with the Amistat 2024 conference.

In total, almost 90 participants from ten countries presented and discussed contributions covering a broad spectrum ranging from theoretical statistics, probability and stochastic analysis, machine learning and computer science to applied statistics in several fields, including forestry, insurance and finance mathematics, medicine, health and epidemiology, metrology, traffic safety, online advertisement, and official statistics. The participants came from Slovakia (12), USA (4), Austria (3), Sweden (2), Belgium (1), Canada (1), France (1), Great Britain (1) and Nigeria (1), and the rest coming from the Czechia. The idea behind the ROBUST conferences has always been to bring together statisticians of all generations and all fields from different Czech and Slovak institutions, Czech and Slovak experts living abroad and top specialists from abroad, to enable the exchange of ideas and to provide them with interdisciplinary insight into the research in statistics.

Five invited lectures were given:

1. Doc. Daniel Klein (Faculty of Science, Pavol Jozef Šafárik University in Košice) delivered a lecture on estimation and testing covariance matrices in multivariate linear models combining both recent theory and result for special cases of covariance structures relevant in real life application. These methods are widely used in psychometry, clinical studies, and biology applications.
2. Doc. David Kraus (Faculty of Science, Masaryk University in Brno) presented new results in functional analysis with censoring with application to HIV-related research. He discussed how to apply models to sparse data observed in irregular time, estimate separate components of the model, and the trajectories of individual patients.
3. Prof. Tomáš Mrkvička (Faculty of Economics, University of South Bohemia in České Budějovice) addressed the issue of false rate envelopes, focused on functional data. False rate discovery control

[1] Unit for Mathematical and Statistical Methods and Statistical Quality, Czech Statistical Office, Prague, Na Padesátém 3268/81, 100 82 Prague 10, Czech Republic. E-mail: ondrej.vozar@csu.gov.cz. Also Faculty of Informatics and Statistics, Prague University of Economics and Business, Prague, Czech Republic.

is an important issue in multiple hypotheses testing when comparing more populations simultaneously. Envelopes provide suitable graphical tool in this setting.

4. Doc. Michal Pešta (Faculty of Mathematics and Physics, Charles University, Prague) delivered a lecture on changing intensities and band bootstrap. The theoretical part is focused on multivariate, non-stationary processes in time and on the study of tests to identify structural breaks. This setting is motivated by real-life problems in the insurance industry. In the application part, an unsupervised data-driven procedure was presented through an actuarial problem concerning claims from various insurance lines of business.
5. Dr. Samuel Rosa (Faculty of Mathematics, Physics and Informatics, Komenského University in Bratislava) provided an interesting presentation on optimal design of experiments, graphs and networks. Optimal experiment design is a well-established statistical methodology enabling to design experiments guaranteeing as much information as possible with a given amount of expertise. Among others, he demonstrated that optimization of some classes of experiment is equivalent to studying the optimality of graphs in graph theory.

This conference continues a long tradition of participation of doctoral and master's degree students in the dedicated section, who orally presented 26 posters. The prizes were awarded in three categories: Bachelor's degree students, Master and first-year Doctoral students, and advanced Doctoral students. The prizes were sponsored by the Czech Mathematical Society and RSJ Securities, a.s. The conference fee for several students and invited speakers was sponsored, as in the past Robust conferences, by the Czech Statistical Society and RSJ Foundation. More at: <*www.karlin.mff.cuni.cz/~antoch*>.

The Editor-in-Chief of *Statistika: Statistics and Economy Journal* kindly invited participants to submit papers on relevant topics to the journal.