Záznamy vložené do ASEP za UI (1.8.-30-9. 2022)
New ICS records in ASEP (1.8.-30-9. 2022)

0560965 - ÚI 2023 cze M - Monography Chapter
Neruda, Roman
Epidemiologické modely s agenty (in print).
Rok s pandemií covid-19 – reflexe v poločase. Praha: Karolinum, 2022 - (Diviak, T.; Šlerka, J.; Šmíd, M.; Zajíček, M.)
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333733

0560964 - ÚI 2023 cze M - Monography Chapter
Vidnerová, Petra - Suchopárová, Gabriela - Neruda, Roman
Simulace epidemiologických opatření v multiagentním modelu (in print).
Rok s pandemií covid-19 – reflexe v poločase. Praha: Karolinum, 2022 - (Diviak, T.; Šlerka, J.; Šmíd, M.; Zajíček, M.)
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333732

0561617 - ÚI 2023 GB J - Journal Article
Sheikhi, A. - Mesiar, R. - Holeňa, Martin
A dimension reduction in neural network using copula matrix.
International Journal of General Systems. Online AUG 2022 (2022). ISSN 0308-1079. E-ISSN 1563-5104
Institutional support: RVO:67985807
Keywords : Principal component * copula * neural network * correlation * association measure
OECD category: Computer sciences, information science, bioinformathics (hardware development to be 2.2, social aspect to be 5.8)
Impact factor: 2.435, year: 2021
Method of publishing: Limited access
https://dx.doi.org/10.1080/03081079.2022.2108029
DOI: 10.1080/03081079.2022.2108029
In prediction analysis, there may exist some nonlinear relations between the exploratory variables, which are not captured by traditional correlation-based linear models such as multiple regression, principal component regression, and so on. In this work, we employ a copula matrix to extract principal components of a set of variables which are pair-wisely associated with a copula. By estimating the pairwise copula and its corresponding parameter(s), we suggest an optimization method to extract principal components from a matrix which contains some pairwise measures of association. We use these components as inputs of an artificial neural network to make a more accurate prediction. We test our proposed method using a simulation study and use it to carry out a more accurate prediction in an AIDS as well as a COVID-19 dataset. To increase the reliability of results, we employ a cross-validation technique.
Permanent Link: https://hdl.handle.net/11104/0334185

0560397 - ÚI 2023 RIV US eng J - Journal Article

Yamashita Rios de Sousa, Arthur Matsuo - Hlinka, Jaroslav

Assessing Serial Dependence in Ordinal Patterns Processes Using Chi-squared Tests with Application to EEG Data Analysis.

Chaos. Roč. 32, č. 7 (2022), č. článku 073126. ISSN 1054-1500. E-ISSN 1089-7682

R&D Projects: GA ČR(CZ) GA21-32608S; GA ČR(CZ) GA21-17211S

Institutional support: RVO:67985807

Keywords : ordinal patterns * symbolic process * serial dependence * electroencephalography * epilepsy * symbolization * stochastic process * chi-squared test * data analysis

OECD category: Applied mathematics

Impact factor: 3.741, year: 2021

Method of publishing: Limited access

https://dx.doi.org/10.1063/5.0096954

DOI: 10.1063/5.0096954

We extend Elsinger's work on chi-squared tests for independence using ordinal patterns and investigate the general class of m-dependent ordinal patterns processes, to which belong ordinal patterns processes derived from random walk, white noise, and moving average processes. We describe chi-squared asymptotically distributed statistics for such processes that take into account necessary constraints on ordinal patterns probabilities and propose a test for m-dependence, with which we are able to quantify the range of serial dependence in a process. We apply the test to epilepsy electroencephalography time series data and observe shorter m-dependence associated with seizures, suggesting that the range of serial dependence decreases during those events. The ordinal patterns symbolization transforms a real-valued time series into a sequence of symbols called ordinal patterns, which simplifies statistical analysis while keeping information about up and down movements. Despite the increasing interest in its application due to the need to understand complex nonlinear dynamics based on observed time series, analytical properties of the distributions of ordinal patterns frequencies are not yet fully known. By modeling a sequence of ordinal patterns as the output of a symbolic process, we study m-dependent ordinal patterns processes, i.e., symbolic processes in the space of ordinal patterns whose maximum dependence range is m. We derive chi-squared asymptotically distributed statistics for this class of processes and use them to evaluate the range of serial dependence in general ordinal patterns processes. Applying the results to analyze epilepsy electroencephalography (EEG) time series, we find that seizure events are characterized by a decrease in the range of serial dependence of the ordinal dynamics.

Permanent Link: https://hdl.handle.net/11104/0333316

0560923 - ÚI 2023 GB eng J - Journal Article

Meili, S. - Brabec, Marek - Rühli, F. - Buehrer, T. W. - Gültekin, N. - Stanga, Z. - Bender, N. - Staub, K. - Reber, E.

Body Mass Index in Young Men in Switzerland after the National Shutdowns during the COVID-19 Pandemic: Results from a Cross-sectional Monitoring Study at the Population Level since 2010.

European Journal of Public Health. Online 22 August 2022 (2022), č. článku ckac111. ISSN 1101-1262. E-ISSN 1464-360X

Institutional support: RVO:67985807

OECD category: Statistics and probability

Impact factor: 4.424, year: 2021

Method of publishing: Open access

https://dx.doi.org/10.1093/eurpub/ckac111

DOI: 10.1093/eurpub/ckac111

BACKGROUND: Owing to the coronavirus disease pandemic, the Swiss goverment imposed a shutdown twice in 2020, which may have changed diet and physical activity. Regarding the question

of weight change during the pandemic, little information based on measured weight data is available. We aimed to investigate whether the body mass indices (BMIs) of young Swiss men after the two shutdowns in spring and fall 2020 differed from those of young men examined before the shutdowns. METHODS: We analysed young Swiss men's BMIs taken during mandatory recruitment for the Swiss Armed Forces at the cross-sectional (not individual longitudinal) monitoring level and across weeks of conscription between January 2010 and July 2021 (n = 373 016). These data allow for continuous health monitoring of young men at almost the population level (coverage, >90%). For statistical modelling, we used the generalized additive model (GAM) framework. RESULTS: We showed that the BMIs of the conscripts examined in the 15 weeks after the two shutdowns in spring and autumn 2020 were not or only slightly different from their baseline values. Sensitivity analyses revealed that this conclusion also holds if the BMI distribution or prevalence of excess weight is assessed. The GAM further showed the significant effects of individual and area-based measures of socioeconomic position and age on BMI. CONCLUSION: Our results suggest that lifestyle changes during the pandemic in young men might have been too modest to be reflected in body weight. However, longitudinal data and/or data on women, children, or the elderly may lead to different conclusions.
Permanent Link: https://hdl.handle.net/11104/0333694

0561014 - ÚI 2023 RIV NL eng J - Journal Article
Khan, K. S. - Latif, Yasir - Munir, A. - Hensel, O.
Comparative Thermal Analyses of Solar Milk Pasteurizers Integrated with Solar Concentrator and Evacuated Tube Collector.
Energy Reports. Roč. 8, November 2022 (2022), s. 7917-7930. ISSN 2352-4847. E-ISSN 2352-4847
Institutional support: RVO:67985807
Keywords : Solar milk pasteurization * Evacuated tube collector * Paraboloidal concentrator * Steam receiver * Thermal analyses * Milk processing at off grid locations
OECD category: Agricultural biotechnology and food biotechnology
Impact factor: 4.937, year: 2021
Method of publishing: Open access
https://dx.doi.org/10.1016/j.egyr.2022.06.001
DOI: 10.1016/j.egyr.2022.06.001
Solar-based milk pasteurization enables decentralized maintenance of milk in remote areas of developing countries like Pakistan. Two innovative and efficient medium temperature range solar techniques; solar concentrator (SC) and evacuated tube collectors (ETC) were employed and compared based on theoretical and experimental analyses for an expedient and effective milk pasteurization. The detailed thermal analyses of both techniques were conducted to investigate the useful energy and losses during pasteurization. The available energy was estimated to be 8.11 and 5.63 kWh at the aperture areas of SC, ETC, respectively. Theoretically, it was also evident that SC, ETC require 4.68 and 4.22 kWh, respectively for a temperature difference of 35–40 °C during pasteurization for the designed milk batch size. However, under practical conditions, heat energy consumed for the milk pasteurization system coupled with SC, ETC was recoded to be 3.56 kWh and 3.91 kWh respectively; this value lies from 3.78–4.32 kWh to pasteurize 100-liters of milk for a temperature difference of 35–40 °C. The predicted value of efficiency for SC, ETC was found to be 57.71 and 74.88% respectively. The efficiency values under field conditions for SC, ETC were found to be 54 and 71.41% respectively. Generally, both systems performed exceptionally however, ETC outperforms SC theoretically and practically attributing to significantly reduced optical and thermal losses. This study concluded that ETC is efficient, simpler in design, stable, compact and cost-effective which provides an excellent opportunity for decentralized milk pasteurization.
Permanent Link: https://hdl.handle.net/11104/0333763
0560446 - ÚI 2023 eng J - Journal Article
Kirchhof, P. - Pecen, Ladislav - Bakhai, A. - De Asmundis, C. - de Groot, J. - Deharo J. C. - Kelly, P. - Levy, P. - Lopez-De-Sa, E. - Monteiro, P. - Steffel, J. - Waltenberger, J. - Weiss,

T. W. - Laeis, P. - Manu, M. C. - Souza, J. - De Caterina, R. ... Total 18 authors
Edoxaban for Stroke Prevention in Atrial Fibrillation and Age-Adjusted Predictors of Clinical Outcomes in Routine Clinical Care.
European Heart Journal-Cardiovascular Pharmacotherapy. Online July 2022 (2022). ISSN 2055-6837. E-ISSN 2055-6845
Keywords : Non-vitamin K oral anticoagulant * Edoxaban * Real-world * Registry * Atrial fibrillation
Impact factor: 11.177, year: 2021
Method of publishing: Open access with time embargo
DOI: 10.1093/ehjcvp/pvac042
AIMS: Patients with atrial fibrillation (AF) treated with oral anticoagulation still suffer from cardiovascular complications including cardiovascular death, stroke, and major bleeding. To identify risk factors for predicting stroke and bleeding outcomes in anticoagulated patients, we assessed 2-year outcomes in patients with AF treated with edoxaban in routine care. We also report the age-adjusted risk predictors of clinical outcomes. METHODS AND RESULTS: The Edoxaban Treatment in Routine Clinical Practice for Patients With Non-Valvular Atrial Fibrillation (ETNA-AF) Europe (NCT02944019) is a prospective, multi-centre, post-authorisation, observational study with an overall 4-year follow-up conducted in 825 centres enrolling edoxaban-treated patients in 10 European countries. Of the 13 133 patients with AF (mean age: 73.6 ± 9.5 years), 5682 (43.3%) were female. At the 2-year follow-up, 9017/13 133 patients were still on edoxaban; 1830 discontinued treatment including 937 who died (annualised event rate of all-cause death was 3.87%). 518 (2.14%) patients died of cardiovascular causes; 234 (0.97%) experienced major bleeding and 168 (0.70%) experienced stroke or systemic embolic events (SEE). Intracranial haemorrhage was noted in 49 patients (0.20%). History of transient ischaemic attack (TIA) at baseline was the strongest predictor of ischaemic stroke or SEE (Wald $\chi 2$: 73.63; $P < 0.0001$). Low kidney function at baseline was the strongest predictor of major bleeding (Wald $\chi 2$: 30.68; $P < 0.0001$). History of heart failure (HF) was the strongest predictor of all-cause (Wald $\chi 2$: 146.99; $P < 0.0001$) and cardiovascular death (Wald $\chi 2$: 100.38; $P < 0.0001$). CONCLUSION: Patients treated with edoxaban in ETNA-AF-Europe reported low 2-year event rates in unselected AF patients. Prior stroke, reduced kidney function, and HF identify patients at high risk of stroke, bleeding and all-cause/cardiovascular death, respectively.
Permanent Link: https://hdl.handle.net/11104/0333373

0560798 - ÚI 2023 RIV NL J - Journal Article
Geletič, Jan - Lehnert, M. - Resler, Jaroslav - Krč, Pavel - Middel, C. - Krayenhoff, E. S. - Krüger, E.
High-Fidelity Simulation of the Effects of Street Trees, Green Roofs and Green Walls on the Distribution of Thermal Exposure in Prague-Dejvice.
Building and Environment. Roč. 223, September 2022 (2022), č. článku 109484. ISSN 0360-1323. E-ISSN 1873-684X
R&D Projects: GA TA ČR(CZ) TO01000219
Grant - others: AV ČR(CZ) StrategieAV21/23
Program: StrategieAV
Institutional support: RVO:67985807
Keywords : Urban greenery * Universal thermal climate index (UTCI) * Thermal comfort * Biometeorology * PALM * Heat-wave
OECD category: Meteorology and atmospheric sciences
Impact factor: 7.093, year: 2021
Method of publishing: Limited access
https://dx.doi.org/10.1016/j.buildenv.2022.109484
DOI: 10.1016/j.buildenv.2022.109484
We investigate the heat stress mitigation potential of greening strategies in Prague using a configuration of the PALM-4U model that has been rigorously evaluated with measurements. Three

greening scenarios were evaluated using the Universal Thermal Climate Index (UTCI). The UTCI reduction effect of broad-leaf or coniferous trees in a complex urban environment was found to be strongly local, with minor domain-average UTCI reductions; −4.1K under tree crowns and −0.6K on average in the neighbourhood as a day-time average, peaking at about twice these values near midday. During daytime the UTCI reduction potential of trees increases with the intensity and duration of solar exposure; −15.1K is the spatial maximum across all scenarios. For trees fully shaded by buildings, UTCI reduction was low (−0.5K as maximum). Tree planting reduces air temperature by more than 5K in some locations under trees, and reduces neighbourhood-average air temperature by up to 0.3K, with cooling peaking in the early evening about 8 h after the corresponding peak in UTCI reduction. Results emphasize the highly localized microclimate effects of trees for pedestrian thermal exposure reduction. The combination of green walls and roofs yielded negligible results in terms of UTCI reduction and only small air temperature effects.
Permanent Link: https://hdl.handle.net/11104/0333582
Research data: Zenodo

0560334 - ÚI 2023 RIV GB eng J - Journal Article
Škoch, Antonín - Rehák Bučková, Barbora - Mareš, Jan - Tintěra, J. - Šanda, Pavel - Jajcay, Lucia - Horáček, J. - Španiel, F. - Hlinka, Jaroslav
Human Brain Structural Connectivity Matrices-Ready for Modelling.
Scientific Data. Roč. 9, č. 1 (2022), č. článku 486. E-ISSN 2052-4463
R&D Projects: GA ČR(CZ) GA21-32608S; GA MZd(CZ) NU21-08-00432
Grant - others: AV ČR(CZ) StrategieAV21/1; AV ČR(CZ) StrategieAV21/26
Program: StrategieAV; StrategieAV
OECD category: Computer sciences, information science, bioinformathics (hardware development to be 2.2, social aspect to be 5.8)
Impact factor: 8.501, year: 2021
Method of publishing: Open access
https://dx.doi.org/10.1038/s41597-022-01596-9
DOI: 10.1038/s41597-022-01596-9
The human brain represents a complex computational system, the function and structure of which may be measured using various neuroimaging techniques focusing on separate properties of the brain tissue and activity. We capture the organization of white matter fibers acquired by diffusion-weighted imaging using probabilistic diffusion tractography. By segmenting the results of tractography into larger anatomical units, it is possible to draw inferences about the structural relationships between these parts of the system. This pipeline results in a structural connectivity matrix, which contains an estimate of connection strength among all regions. However, raw data processing is complex, computationally intensive, and requires expert quality control, which may be discouraging for researchers with less experience in the field. We thus provide brain structural connectivity matrices in a form ready for modelling and analysis and thus usable by a wide community of scientists. The presented dataset contains brain structural connectivity matrices together with the underlying raw diffusion and structural data, as well as basic demographic data of 88 healthy subjects.
Permanent Link: https://hdl.handle.net/11104/0333530

0560436 - ÚI 2023 RIV GB eng J - Journal Article
Bartoš, František - Aust, F. - Haaf, J. M.
Informed Bayesian Survival Analysis.
BMC Medical Research Methodology. Roč. 22, September 2022 (2022), č. článku 238. E-ISSN 1471-2288
Grant - others: Ministerstvo školství, mládeže a tělovýchovy - GA MŠk(CZ) LM2018140
Institutional support: RVO:67985807

Keywords : Bayesian * survival analysis * model-averaging * Bayes factor * historical data
OECD category: Statistics and probability
Impact factor: 4.612, year: 2021
Method of publishing: Open access
https://dx.doi.org/10.1186/s12874-022-01676-9
DOI: 10.1186/s12874-022-01676-9
We overview Bayesian estimation, hypothesis testing, and model-averaging and illustrate how they benefit parametric survival analysis. We contrast the Bayesian framework to the currently dominant frequentist approach and highlight advantages, such as seamless incorporation of historical data, continuous monitoring of evidence, and incorporating uncertainty about the true data generating process. We illustrate the application of the Bayesian approaches on an example data set from a colon cancer trial. We compare the Bayesian parametric survival analysis and frequentist models with AIC/BIC model selection in fixed-n and sequential designs with a simulation study. In the example data set, the Bayesian framework provided evidence for the absence of a positive treatment effect on disease-free survival in patients with resected colon cancer. Furthermore, the Bayesian sequential analysis would have terminated the trial 13.3 months earlier than the standard frequentist analysis. In a simulation study with sequential designs, the Bayesian framework on average reached a decision in almost half the time required by the frequentist counterparts, while maintaining the same power, and an appropriate false-positive rate. Under model misspecification, the Bayesian framework resulted in higher false-negative rate compared to the frequentist counterparts, which resulted in a higher proportion of undecided trials. In fixed-n designs, the Bayesian framework showed slightly higher power, slightly elevated error rates, and lower bias and RMSE when estimating treatment effects in small samples. We have made the analytic approach readily available in RoBSA R package. The outlined Bayesian framework provides several benefits when applied to parametric survival analyses. It uses data more efficiently, is capable of greatly shortening the length of clinical trials, and provides a richer set of inferences.
Permanent Link: https://hdl.handle.net/11104/0333363

0561499 - ÚI 2023 US eng J - Journal Article
Campos Araújo, Pedro - Moreira, L. - Pavez-Signé, M.
Ramsey goodness of trees in random graphs.
Random Structures and Algorithms. to appear (2022). ISSN 1042-9832. E-ISSN 1098-2418
Impact factor: 1.057, year: 2021
Permanent Link: https://hdl.handle.net/11104/0334093

0560805 - ÚI 2023 KR eng J - Journal Article
Kalina, Jan
Robust Coefficients of Correlation or Spatial Autocorrelation Based on Implicit Weighting.
Journal of the Korean Statistical Society. Online 26 August 2022 (2022). ISSN 1226-3192. E-ISSN 2005-2863
R&D Projects: GA ČR(CZ) GA22-02067S
Institutional support: RVO:67985807
Impact factor: 0.820, year: 2021
Method of publishing: Limited access
DOI: 10.1007/s42952-022-00184-2
Pearson product-moment correlation coefficient represents a fundamental tool for measuring linear association between two data vectors. In various applications, it is often reasonable to consider its weighted version known as the weighted correlation coefficient. This paper starts with theoretical considerations related to properties of the weighted correlation coefficient, particularly to its local robustness and relationship to other similarity measures. Inspired by the least weighted squares

regression estimator, a robust correlation coefficient is investigated here together with its spatial autocorrelation extension. Finally, the considered methods are investigated in two image processing tasks.
Permanent Link: https://hdl.handle.net/11104/0333587

0559538 - ÚI 2023 GB eng J - Journal Article
Kalina, Jan - Janáček, Patrik
Testing Exchangeability of Multivariate Distributions.
Journal of Applied Statistics. Online 26 Jul 2022 (2022). ISSN 0266-4763. E-ISSN 1360-0532
R&D Projects: GA ČR GA21-05325S
Institutional support: RVO:67985807
Keywords : multivariate distribution * exchangeable distribution * multivariate permutation test * multiple testing * non-parametric combination methodology * multiple comparisons
OECD category: Statistics and probability
Impact factor: 1.416, year: 2021
Method of publishing: Open access
https://dx.doi.org/10.1080/02664763.2022.2102158
DOI: 10.1080/02664763.2022.2102158
Although there have been a number of available tests of bivariate exchangeability, i.e. bivariate symmetry for bivariate distributions, the literature is void of tests whether a multivariate distribution with more than two dimensions is exchangeable or not. In this paper, multivariate permutation tests of exchangeability of multivariate distributions are proposed, which are based on the non-parametric combination methodology, i.e. on combining non-parametric bivariate exchangeability tests. Numerical experiments on real as well as simulated multivariate data with more than two dimensions are presented here. The multivariate permutation test turns out to be typically more powerful than a bivariate exchangeability test performed only over a single pair of variables, and also more suitable compared to tests exploiting the approaches of Benjamini–Yekutieli or Bonferroni.
Permanent Link: https://hdl.handle.net/11104/0332806

0560295 - ÚI 2023 RIV US eng J - Journal Article
Jiřina, Marcel - Krayem, S.
The Distance Function Optimization for the Near Neighbors-Based Classifiers.
ACM Transactions on Knowledge Discovery from Data. Roč. 16, č. 6 (2022), s. 1-21, č. článku 101. ISSN 1556-4681. E-ISSN 1556-472X
R&D Projects: GA MŠk(CZ) LM2018113
Institutional support: RVO:67985807
Keywords : Near neighbors * classification * distance function * metric
Impact factor: 4.157, year: 2021
https://dx.doi.org/10.1145/3434769
DOI: 10.1145/3434769
Based on the analysis of conditions for a good distance function we found four rules that should be fulfilled. Then, we introduce two new distance functions, a metric and a pseudometric one. We have tested how they fit for distance-based classifiers, especially for the IINC classifier. We rank distance functions according to several criteria and tests. Rankings depend not only on criteria or nature of the statistical test, but also whether it takes into account different difficulties of tasks or whether it considers all tasks as equally difficult. We have found that the new distance functions introduced belong among the four or five best out of 23 distance functions. We have tested them on 24 different tasks, using the mean, the median, the Friedman aligned test, and the Quade test. Our results show that a suitable distance function can improve behavior of distance-based classification rules.
Permanent Link: https://hdl.handle.net/11104/0333274

0561587 - ÚI 2023 CZ eng J - Journal Article
Matonoha, Ctirad - Papáček, Štěpán - Lynnyk, Volodymyr
On an optimal setting of delays for the D-QSSA model reduction method applied to a class of chemical reaction networks.
Applications of Mathematics. Accepted August 2022. ISSN 0862-7940. E-ISSN 1572-9109
Institutional support: RVO:67985807 ; RVO:67985556
Permanent Link: https://hdl.handle.net/11104/0334165

0560680 - ÚI 2023 RIV GB eng C - Conference Paper (international conference)
Cintula, Petr - Metcalfe, G. - Tokuda, N.
Algebraic Semantics for One-Variable Lattice-Valued Logics.
Advances in Modal Logic. Volume 14. London: College Publications, 2022 - (Fernández-Duque, D.; Palmigiano, A.; Pinchinat, S.), s. 237-258. ISBN 978-1-84890-413-2.
[AIML 2022: Advances in Modal Logic. Rennes (FR), 22.08.2022-25.08.2022]
Institutional support: RVO:67985807
Keywords : Modal Logic * Substructural Logics * Lattice-Valued Logics * One-Variable Fragment * Superamalgamation * Sequent Calculus * Interpolation
OECD category: Pure mathematics
The one-variable fragment of any first-order logic may be considered as a modal logic, where the universal and existential quantifiers are replaced by a box and diamond modality, respectively. In several cases, axiomatizations of algebraic semantics for these logics have been obtained: most notably, for the modal counterparts S5 and MIPC of the one-variable fragments of first-order classical logic and intuitionistic logic, respectively. Outside the setting of first-order intermediate logics, however, a general approach is lacking. This paper provides the basis for such an approach in the setting of first-order lattice-valued logics, where formulas are interpreted in algebraic structures with a lattice reduct. In particular, axiomatizations are obtained for modal counterparts of one-variable fragments of a broad family of these logics by generalizing a functional representation theorem of Bezhanishvili and Harding for monadic Heyting algebras. An alternative proof-theoretic proof is also provided for one-variable fragments of first-order substructural logics that have a cut-free sequent calculus and admit a certain bounded interpolation property
Permanent Link: https://hdl.handle.net/11104/0333542

0560679 - ÚI 2023 RIV US eng C - Conference Paper (international conference)
Fejlek, Jiří - Ratschan, Stefan
Computing Funnels Using Numerical Optimization Based Falsifiers.
2022 International Conference on Robotics and Automation (ICRA). Proceedings. Piscataway: IEEE, 2022 - (O'Malley, M.), s. 4318-4324. ISBN 978-1-7281-9682-4.
[ICRA 2022: IEEE International Conference on Robotics and Automation. Philadelphia (US), 23.05.2022-27.05.2022]
R&D Projects: GA ČR(CZ) GA21-09458S
Institutional support: RVO:67985807
Keywords : Robot motion * Automation * Algebra * Ordinary differential equations * Programming * Trajectory * Behavioral sciences
OECD category: Robotics and automatic control
https://dx.doi.org/10.1109/ICRA46639.2022.9811730
DOI: 10.1109/ICRA46639.2022.9811730
In this paper, we present an algorithm that computes funnels along trajectories of systems of ordinary differential equations. A funnel is a time-varying set of states containing the given trajectory, for which the evolution from within the set at any given time stays in the funnel. Hence it generalizes the behavior of single trajectories to sets around them, which is an important task, for example, in robot

motion planning. In contrast to approaches based on sum-of-squares programming, which poorly scale to high dimensions, our approach is based on falsification and tackles the funnel computation task directly, through numerical optimization. This approach computes accurate funnel estimates far more efficiently and leaves formal verification to the end, outside all funnel size optimization loops.
Permanent Link: https://hdl.handle.net/11104/0333539

0560713 - ÚI 2023 US eng C - Conference Paper (international conference)
Suchopárová, Gabriela - Neruda, Roman
Graph Embedding for Neural Architecture Search with Input-Output Information.
Auto-ML Conf 2022: Accepted Papers: Late-Breaking Workshop. Baltimore: AutoML Conference, 2022.
[Auto-ML 2022: International Conference on Automated Machine Learning /1./. Baltimore (US), 25.07.2022-27.07.2022]
Grant - others: Ministerstvo školství, mládeže a tělovýchovy - GA MŠk(CZ) LM2018140
Institutional support: RVO:67985807
https://automl.cc/wp-content/uploads/2022/07/graph_embedding_for_neural_arc.pdf
Graph representation learning has been widely used in neural architecture search as a partof performance prediction models. Existing works focused mostly on neural graph similarity without considering functionally similar networks with different architectures. In this work, we adress this issue by using meta-information of input images and output features of a particular neural network. We extended the arch2vec model, a graph variational autoencoder for neural architecture search, to learn from this novel kind of data in a semi-supervised manner. We demonstrate our approach on the NAS-Bench-101 search space and the CIFAR10 dataset, and compare our model with the original arch2vec on a REINFORCE search task and a performance prediction task. We also present a semi-supervised accuracy predictor, and we discuss the advantages of both variants. The results are competitive with the original model and show improved performance.
Permanent Link: https://hdl.handle.net/11104/0333566

0560973 - ÚI 2023 RIV CH eng C - Conference Paper (international conference)
Bílková, Marta - Frittella, S. - Kozhemiachenko, D.
Paraconsistent Gödel Modal Logic.
Automated Reasoning: 11th International Joint Conference, IJCAR 2022 Proceedings. Cham: Springer, 2022 - (Blanchette, J.; Kovács, L.; Pattinson, D.), s. 429-448. Lecture Notes in Computer Science, 13385. ISBN 978-3-031-10768-9.
[IJCAR 2022: International Joint Conference on Automated Reasoning /11./. Haifa (IL), 08.08.2022-10.08.2022]
R&D Projects: GA ČR(CZ) GA22-01137S
Institutional support: RVO:67985807
Kywords : Constraint tableaux * Gödel logic * Two-dimensional logics * Modal logics
DOI: 10.1007/978-3-031-10769-6_26
We introduce a paraconsistent modal logic KG2, based on Gödel logic with coimplication (bi-Gödel logic) expanded with a De Morgan negation ¬. We use the logic to formalise reasoning with graded, incomplete and inconsistent information. Semantics of KG2 is two-dimensional: we interpret KG2 on crisp frames with two valuations v1 and v2, connected via ¬, that assign to each formula two values from the real-valued interval [0, 1]. The first (resp., second) valuation encodes the positive (resp., negative) information the state gives to a statement. We obtain that KG2 is strictly more expressive than the classical modal logic K by proving that finitely branching frames are definable and by establishing a faithful embedding of K into KG2. We also construct a constraint tableau calculus for KG2 over finitely branching frames, establish its decidability and provide a complexity evaluation
Permanent Link: https://hdl.handle.net/11104/0333737

0561586 - ÚI 2023 RIV US eng C - Conference Paper (international conference)
Pilát, M. - Suchopárová, Gabriela
Using graph neural networks as surrogate models in genetic programming.
GECCO 2022 Companion - Proceedings of the 2022 Genetic and Evolutionary Computation Conference. New York: ACM, 2022 - (Fieldsend, J.), s. 582-585. ISBN 978-1-4503-9268-6.
[GECCO 2022: Genetic and Evolutionary Computation Conference. Boston (US), 09.07.2022-13.07.2022]
Grant - others: Ministerstvo školství, mládeže a tělovýchovy - GA MŠk(CZ) LM2018140
Institutional support: RVO:67985807
Keywords : graph neural networks * genetic programming * surrogate models
https://dx.doi.org/10.1145/3520304.3529024
DOI: 10.1145/3520304.3529024
Surrogate models have been used for decades to speed up evolutionary algorithms, however, most of their uses are tailored for problems with simple individual encoding, like vectors of numbers. In this paper, we evaluate the possibility to use two different types of graph neural networks to predict the quality of a solution in tree-based genetic programming without evaluating the trees. The proposed models are evaluated in a number of benchmarks from symbolic regression and reinforcement learning and show that GNNs can be successfully used as surrogate models for problems with a complex structure.
Permanent Link: https://hdl.handle.net/11104/0334164

0561005 - ÚI 2023 AR C - Conference Paper (international conference)
Cerna, David M.
When First-order Unification Calls itself.
Informal Proceedings of the 35th International Workshop on Unification (UNIF 2021). Buenos Aires, 2022 - (Baader, F.; Baumgartner, A.), s. 1-6
[UNIF 2021: International Workshop on Unification /35./. Buenos Aires / Virtual (AR), 18.07.2022-18.07.2022]
Institutional support: RVO:67985807
https://www.uoh.cl/unif-2021/assets/proceedings-UNIF2021.pdf
We present a unification problem based on first-order syntactic unification which ask whether every problem in a particular infinite sequence of unification problems is unifiable. The restricted structure of our sequence of unification problems allows an alternative formulation of the problem as recursively calling first-order syntactic unification on certain bindings if the unifier has a particular structure. The latter formulation allows us to conjecture a sufficient condition for unifiability of the sequence based on the structure of a finite sequence of unifiers. It remains an open whether this condition is also necessary.
Permanent Link: https://hdl.handle.net/11104/0333757

0559899 - UIVT-O 892121 CS1 cze C - Conference Paper (international conference)
Hořejš, Jiří - Kufudaki, Olga
Neuronové sítě a neuronové počítače.
Metody umělé inteligence a expertní systémy IV. Praha: ČSVTS - FEL ČVUT, 1989, s. 1-13. ISBN 80-02-99823-5
Permanent Link: https://hdl.handle.net/11104/0333028

0561601 - ÚI 2023 eng L4 - Software
Lukšan, Ladislav - Matonoha, Ctirad - Vlček, Jan
UFO 2022.

Internal code: UFO 2022 ; 2022
Technical parameters: Interaktivní optimalizační systém, využívající Fortran 90.
Economic parameters: Efektivní řešení optimalizačních úloh, pro které není dostupný jiný software.
Institutional support: RVO:67985807
UFO is an interactive system for universal functional optimization that serves for solving both dense medium-size and sparse large-scale optimization problems. The UFO system can be used for the following applications: Formulation and solution of particular optimization problems. Preparation of specialized optimization routines (or subroutines). Designing and testing new optimization methods. The UFO system is a very useful tool for optimization algorithms development.
Permanent Link: https://hdl.handle.net/11104/0334178

0561593 - ÚI 2023 L4 - Software
Cerna, David M.
AXolotl.
Internal code: AXolotl ; 2019
Institutional support: RVO:67985807
Axolotl is an educational game designed for self study and training of logic and formal reasoning. The app includes a library of over 60 problems using three different logic calculi and a short tutorial to get started. Additionally, completed problems can be viewed through the included proof viewer and saved to your gallery as a jpeg image. If you would rather compile to a Latex file, the completed proof may be copied to clip board as a latex file. To learn more about the creators of the app and the supporting institutions please see the About page within the app.
Permanent Link: https://hdl.handle.net/11104/0334172
Research data: Google Play

0560377 - ÚI 2023 CZ eng V - Research Report
Fabián, Zdeněk
A Measure of Variability WIthin Parametric Families of Continuous Distributions.
Prague: ICS CAS, 2022. 20 s. Technical Report, V-1287.
Institutional support: RVO:67985807
Keywords : scalar-valued score * score mean * score variance * distance in the sample space
A continuous probability measure on an open interval of the real line induces in it a unique geometry, "center of gravity" of which is the typical value of the distribution. In the paper is identified a score variance as a finite measure of variability of distributions with respect to the typical value and discussed its properties and methods of estimation. Itroducing a generalized Rao distance in the sample space one can appraise the precision of the estimate of the typical value.
Permanent Link: https://hdl.handle.net/11104/0333306

0561497 - ÚI 2023 US eng V - Research Report
Campos Araújo, Pedro - Pavez-Signé, M. - Sanhueza-Matamala, Nicolás
Ramsey numbers of cycles in random graphs.
Cornell University, 2022. 28 s. arXiv.org e-Print archive, arXiv:2208.13028 [math.CO].
R&D Projects: GA ČR(CZ) GJ20-27757Y
Institutional support: RVO:67985807
https://arxiv.org/abs/2208.13028
Permanent Link: https://hdl.handle.net/11104/0334092

0560856 - ÚI 2023 CZ eng V - Research Report
Jiříček, Stanislav - Koudelka, V. - Mantini, D. - Mareček, R. - Hlinka, Jaroslav
Spatio-Spectral EEG Patterns in the Source-Reconstructed Space and Relation to Resting-State Networks: An EEG-fMRI Study.
Prague: ICS CAS, 2022. 23 s. Technical Report, V-1288.
R&D Projects: GA ČR(CZ) GA21-32608S
Institutional support: RVO:67985807
Keywords : EEG-fMRI Integration * EEG-informed fMRI * Spatio-spectral Decomposition * Electrical Source Imaging * Independent Component Analysis * Resting State Networks
In this work, we present and evaluate a novel EEG-fMRI integration approach combining a spatio-spectral decomposition method and a reliable source localization technique. On the large 72 subjects resting- state hdEEG-fMRI data set we tested the stability of the proposed method in terms of both extracted spatio-spectral patterns(SSPs) as well as their correspondence to the BOLD signal. We also compared the proposed method with the spatio-spectral decomposition in the electrode space as well as well-known occipital alpha correlate in terms of the explained variance of BOLD signal. We showed that the proposed method is stable in terms of extracted patterns and where they correlate with the BOLD signal. Furthermore, we show that the proposed method explains a very similar level of the BOLD signal with the other methods and that the BOLD signal in areas of typical BOLD functional networks is explained significantly more than by a chance. Nevertheless, we didn't observe a significant relation between our source-space SSPs and the BOLD ICs when spatio-temporally comparing them. Finally, we report several the most stable source space EEG-fMRI patterns together with their interpretation and comparison to the electrode space patterns.
Permanent Link: https://hdl.handle.net/11104/0333634

0560802 - ÚI 2023 CZ cze V - Research Report
Geletič, Jan - Lehnert, M.
Tisková zpráva - měření tepelného komfortu.
Praha: ICS CAS, 2022. 1 s. Press Release, PR-1.
Grant - others: AV ČR(CZ) StrategieAV21/23
Program: StrategieAV
Institutional support: RVO:67985807
https://www.cs.cas.cz/docs/tiskova_zprava_Geletic.pdf
Permanent Link: https://hdl.handle.net/11104/0333584

0561173 - ÚI 2023 eng A - Abstract
Bílková, Marta
Belnapian logics for uncertainty.
[DaLí - Dynamic Logic: new trends and applications. Online, 31.07.2022]
Method of presentation: Zvaná přednáška
URL events: http://dali2022.campus.ciencias.ulisboa.pt
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333851

0560834 - ÚI 2023 CZ eng A - Abstract
Bílková, Marta
Belnapian logics for uncertainty.
LOGICA 2022. Abstracts. Prague: Institute of Philosophy AS CR, 2022. s. 8-9.
[Logica 2022. 11.09.2022-15.09.2022, Hejnice]
Permanent Link: https://hdl.handle.net/11104/0333613

0560810 - ÚI 2023 IT eng A - Abstract
Janáček, P. - Kalina, Jan
A Bootstrap Comparison of Robust Regression Estimators.
Book of Abstracts COMPSTAT 2022. Bologna: COMPSTAT and SDS, 2022. s. 28-28. ISBN 978-90-73592-40-7.
[COMPSTAT 2022: International Conference on Computational Statistics / 24./. 23.08.2022-26.08.2022, Bologna]
Institutional support: RVO:67985807
http://www.compstat2022.org/docs/COMPSTAT2022_BoA.pdf?20220718212814
The least squares estimator in linear regression is well known to be highly vulnerable to the presence of outliers in the data. Available robust statistical estimators are preferable as alternatives to the classical least squares. It has been repeatedly recommended to use the least squares together with a robust estimator, where the latter is understood as a diagnostic tool for the former. In other words, only if the robust estimator yields a very different result, the user should investigate the dataset closer and search for explanations. This requires a formal hypothesis test. A bootstrap test of equality of two linear regression estimators is developed. Its performance is presented on several real economic datasets contaminated by outliers. Although robust estimation (and particularly the least weighted squares estimator) is beneficial in all these datasets, robust estimates turn out not to be significantly different from non-robust ones.
Permanent Link: https://hdl.handle.net/11104/0333590

0561177 - ÚI 2023 eng A - Abstract
Bílková, Marta
Belnapian many-valued logics for uncertainty.
[AMS Spring Western Virtual Sectional meeting. Online, 14.05.2022]
Method of presentation: Zvaná přednáška
Event organizer: AMS
URL events: https://meetings.ams.org/math/spring2022w/meetingapp.cgi/Paper/14269
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333854

0561152 - ÚI 2023 IT eng A - Abstract
Martinková, Patrícia - Bartoš, František - Brabec, Marek
Computational aspects of reliability estimation.
IMPS 2022 Book of Abstracts (Talks, Posters). University of Bologna, 2022. s. 98-98.
[IMPS 2022. International Meeting of the Psychometric Society. 11.07.2022-15.07.2022, Bologna]
Institutional support: RVO:67985807
https://www.psychometricsociety.org/imps-2022
Permanent Link: https://hdl.handle.net/11104/0333837

0561157 - ÚI 2023 eng A - Abstract
Martinková, Patrícia
Computational aspects of reliability estimation. Spotlight talk.
[Bologna. IMPS 2022. International Meeting of the Psychometric Society, 11.07.2022]
Method of presentation: Zvaná přednáška
Event organizer: Psychometric Society
Institutional support: RVO:67985807
https://www.psychometricsociety.org/imps2022-speakers
Permanent Link: https://hdl.handle.net/11104/0333839

0561180 - ÚI 2023 PT eng A - Abstract
Katina, Stanislav
Functional data analysis of three-dimensional surface data.
LinStat 2022. Book of Abstracts. Polytechnic Institute of Tomar, 2022 - (Klein, D.; Carvalho, F.). s. 18-19
[LinStat. International Conference on Trends and Perspectives in Linear Statistical Inference. 04.07.2022-08.07.2022, Tomar]
Institutional support: RVO:67985807
http://www.linstat.ipt.pt/2022/?script=20
Permanent Link: https://hdl.handle.net/11104/0333856

0560999 - ÚI 2023 A - Abstract
Brown, E. C. - Cerna, David M.
Higher-Order Unification with Definition by Cases.
UNIF 2022 Accepted Papers. Unification Workshop, 2022.
[FLoC2022: The Federated Logic Conference /8./. 31.07.2022-12.07.2022, Haifa]
Institutional support: RVO:67985807
We discuss unification within the simply-typed λ-calculus extended by a definition by cases operator (denoted by d) slightly differing from similar operators introduced by earlier investigations. Such operators may be thought of as restrictions of Hilbert's choice operator. We provide several non-trivial examples which illustrate the benefits of introducing such an operator.
Permanent Link: https://hdl.handle.net/11104/0333754

0560935 - ÚI 2023 eng A - Abstract
Cerna, David M.
Inductive Logic Programming: the Basics, and Modern Approaches to Symbolic Learning.
[Kutaisi International University Annual Conference. Tbilisi, 12.07.2022]
Method of presentation: Zvaná přednáška
Event organizer: Kutaisi International University
Institutional support: RVO:67985807
https://www.kiu.edu.ge/index.php?m=205&news_id=229&lng=eng
Permanent Link: https://hdl.handle.net/11104/0333707

0561001 - ÚI 2023 GB eng A - Abstract
Purgal, S. J. - Cerna, David M. - Kaliszyk, C.
Learning higher-order logic programs from failures.
IJCLR 2022 Program. 2022.
[IJCLR 2022: The International Joint Conference on Learning & Reasoning /2./. 28.09.2022-30.09.2022, Windsor Great Park]
Permanent Link: https://hdl.handle.net/11104/0333756

0561490 - ÚI 2023 GB eng A - Abstract
Campos Araújo, Pedro
On the Anti-Ramsey Threshold for non-balanced Graphs.
29th British Combinatorial Conference Abstract Booklet. Lancaster University, 2022. s. 92-92.
[British Combinatorial Conference /29./. 11.07.2022-15.07.2022, Manchaster]
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0334085

0560686 - ÚI 2023 CZ eng A2 - Proceedings Abstract
Holeňa, Martin
Machine Learning Alleviates the Dilemma of Black-Box Optimization.
FSTA 2022 Book of Abstracts. Ostrava: University of Ostrava, 2022 - (Stupňanová, A.; Dyba, M.; Pavliska, V.). s. 15-16. ISBN 978-80-7599-299-4.
[FSTA 2022. International Conference on Fuzzy Set Theory and Applications /16./. 30.01.2022-04.02.2022, Liptovský Ján]
https://fsta.sk/invited_speakers.html
Permanent Link: https://hdl.handle.net/11104/0333544

0560723 - ÚI 2023 eng A - Abstract
Ratschan, Stefan
Non-Linear Real Arithmetic with Transcendental Function Symbols: Undecidable but Easy? Keynote Speaker.
[International Workshop on Satisfiability Checking and Symbolic Computation /7./. Haifa, 12.08.2022]
Method of presentation: Zvaná přednáška
URL events: http://www.sc-square.org/CSA/workshop7.html
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333576

0560938 - ÚI 2023 eng A - Abstract
Paluš, Milan
Ordinal patterns in causality detection.
[Ordinal methods: Concepts, applications, new developments and challenges. International Workshop. Dresden, 28.02.2022]
Method of presentation: Zvaná přednáška
Event organizer: Max Planck Institute for the Physics of Complex Systems
Institutional support: RVO:67985807
https://www.pks.mpg.de/orpatt22
Permanent Link: https://hdl.handle.net/11104/0333709

0560947 - ÚI 2023 cze A - Abstract
Haniková, Zuzana
Pluralismus v základech matematiky.
[Letní filosofická škola 2022 /32./. Velké Losiny, 01.07.2022]
Method of presentation: Přednáška
URL events: https://letnifilosofickaskola.webnode.cz/lfs-2022/
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333718

0561491 - ÚI 2023 eng A - Abstract
Campos Araújo, Pedro
Ramsey numbers of cycles in random graphs.
[International Conference on Random Structures and Algorithms "RS&A201/2022 /21./. Gniezno, 01.08.2022]
URL events: https://rsa2021.amu.edu.pl/
Permanent Link: https://hdl.handle.net/11104/0334087

0560809 - ÚI 2023 PT eng A - Abstract
Kalina, Jan - Janáček, Patrik
Robustness Aspects of Optimized Centroids.
IFCS 2022: Classification and Data Science in the Digital Age. Book of Abstracts. Porto: CLAD - Associação Portuguesa de Classificação e Análise de Dados, 2022. s. 187-187. ISBN 978-989-98955-9-1.
[IFCS 2022: The Conference of the International Federation of Classification Societies /17./. 19.07.2022-23.07.2022, Porto]
Institutional support: RVO:67985807
Keywords : centroids * weighted correlation * robustness * contamination * centroid optimization
https://ifcs2022.fep.up.pt/wp-content/uploads/2022/07/IFCS2022_Book_Abstracts_v1.pdf
Centroids are often used for object localization tasks, supervised segmentation in medical image analysis, or classification in other specific tasks. This paper starts by contributing to the theory of centroids by evaluating the effect of modified illumination on the weighted correlation coefficient. Further, robustness of various centroid-based tools is investigated in experiments related to mouth localization in non-standardized facial images or classification of high-dimensional data in a matched pairs design. The most robust results are obtained if the sparse centroidbased method for supervised learning is accompanied with an intrinsic variable selection. Robustness, sparsity, and energy-efficient computation turn out not to contradict the requirement on the optimal performance of the centroids.
Permanent Link: https://hdl.handle.net/11104/0333589

0560997 - ÚI 2023 eng A - Abstract
Purgal, S. J. - Cerna, David M. - Kaliszyk, C.
Sifting through a large hypothesis space: Revisiting differentiable learning through satisfiability ∗.
7th Conference on Artificial Intelligence and Theorem Proving AITP 2022. 2022.
[AITP 2022: Conference on Artificial Intelligence and Theorem Proving /7./. 04.09.2022-09.09.2022, Aussois / Virtual]
Institutional support: RVO:67985807
http://aitp-conference.org/2022/abstract/AITP_2022_paper_14.pdf
A difficultly which must be addressed by inductive logical programming (ILP) systems is how to deal with the enormous space of plausible solutions. The majority of modern ILP systems approach this problem through the meta-learning paradigm, that is, only consider plausible solutions which are constructable from a set of clause templates. This approach has been adopted by investigations into neuro-symbolic ILP. Our investigation uses clause templates together with a variant of δILP, to expand the hypothesis space, rather than contract it. Our experiments support the following hypothesis: providing gradient descent with a larger solution space aids the discovery of explanatory hypotheses.
Permanent Link: https://hdl.handle.net/11104/0333753

0560948 - ÚI 2023 eng A - Abstract
Kůrková, Věra
Some implications of high-dimensional geometry for neurocomputing. Keynote plenary lecture.
[ICANN 2022. International Conference on Artificial Neural Networks /31./. Bristol, 06.09.2022]
Method of presentation: Zvaná přednáška
Event organizer: Department of Computer Science and Creative Technologies of the University of the West of England, Bristol
Institutional support: RVO:67985807
https://e-nns.org/icann2022/keynote-speakers/
Permanent Link: https://hdl.handle.net/11104/0333719

0560813 - ÚI 2023 IT eng A - Abstract
Kalina, Jan
Testing Exchangeability of Multivariate Distributions.
Book of Abstracts COMPSTAT 2022. Bologna: COMPSTAT and SDS, 2022. s. 64-64. ISBN 978-90-73592-40-7.
[COMPSTAT 2022: International Conference on Computational Statistics / 24./. 23.08.2022-26.08.2022, Bologna]
Institutional support: RVO:67985807
http://www.compstat2022.org/docs/COMPSTAT2022_BoA.pdf?20220718212814
Although there have been a number of available tests of bivariate exchangeability, i.e. bivariate symmetry for bivariate distributions, the literature is void of tests on whether a multivariate distribution with more than two dimensions is exchangeable or not. Multivariate permutation tests of exchangeability of multivariate distributions are proposed, which are based on the nonparametric combination methodology, i.e. on combining nonparametric bivariate exchangeability tests. Numerical experiments on real as well as simulated multivariate data with more than two dimensions are presented here. The multivariate permutation test turns out to be typically more powerful than a bivariate exchangeability test performed only over a single pair of variables, and also more suitable compared to tests exploiting the approaches of Benjamini-Yekutieli or Bonferroni.
Permanent Link: https://hdl.handle.net/11104/0333592

0561267 - ÚI 2023 eng A - Abstract
Ferenz, Nicholas
Some Results, Thoughts, and Historical Notes on Quantified (Modal) Relevant Logics.
[Bochum Nonclassical Logic Workshop II. Bochum, 19.04.2022]
Method of presentation: Zvaná přednáška
Event organizer: Ruhr University Bochum
Institutional support: RVO:67985807
https://sites.google.com/site/hitoshiomori/workshops/bncl2?authuser=0
Permanent Link: https://hdl.handle.net/11104/0333959

0560824 - ÚI 2023 PT eng A - Abstract
Fernández-Duque, David
The topological μ-calculus.
Topology, Algebra and Categories in Logic. Book of Abstracts. Coimbra: University of Coimbra, 2022. s. 3-4.
[TACL 2022. Topology, Algebra and Categories in Logic. 20.06.2022-24.06.2022, Coimbra]
https://www.mat.uc.pt/~tacl2022/#inviteds
Permanent Link: https://hdl.handle.net/11104/0333605

0560822 - ÚI 2023 PT eng A - Abstract
Bílková, Marta
Two-layered Belnapian logics for uncertainty.
Topology, Algebra and Categories in Logic. Book of Abstracts. Coimbra: University of Coimbra, 2022. s. 1-2.
[TACL 2022. Topology, Algebra and Categories in Logic. 20.06.2022-24.06.2022, Coimbra]
https://www.mat.uc.pt/~tacl2022/#inviteds
Permanent Link: https://hdl.handle.net/11104/0333604

0561503 - ÚI 2023 eng A - Abstract
Porubský, Štefan
Uniform distribution of the weighted sum-of-digits functions.
[Number Theory Conference 2022 In honour of Professors Kálmán Győry, János Pintz and András Sárközy, 04.07.2022]
Method of presentation: Zvaná přednáška
Event organizer: Institute of Mathematics of the University of Debrecen
URL events: https://ntc2020.math.unideb.hu/
Permanent Link: https://hdl.handle.net/11104/0334096

0560936 - ÚI 2023 BR eng A - Abstract
Cerna, David M.
Anti-unification: Applications and Recent Results.
XIII Summer Workshop in Mathematics. Book of Abstracts. Brasilia: University of Brasilia, 2021. s. 197-197.
[Summer Workshop in Mathematics /13./. 08.02.2021-12.02.2021, University of Brasilia]
Permanent Link: https://hdl.handle.net/11104/0333708

0561549 - ÚI 2023 eng A - Abstract
Campos Araújo, Pedro
Hamilton cycles in uniformly dense hypergraphs.
[Joint DIMEA and FORMELA seminar. Brno, 18.10.2021]
Method of presentation: Zvaná přednáška
Event organizer: Faculty of Informatics, Brno
https://www.fi.muni.cz/dfseminar/fall21.html.en
Permanent Link: https://hdl.handle.net/11104/0334136

0561040 - ÚI 2023 eng A - Abstract
Šanda, Pavel
Oscillations of rest and sleep.
[MAID 2021. Workshop on Modelling and Analysis of intracortical data. Prague, 07.12.2021]
Method of presentation: Přednáška
Event organizer: ICS AS CR
URL events: http://cobra.cs.cas.cz/MAID_2021/
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333795

0560949 - ÚI 2023 eng A - Abstract
Kůrková, Věra
Some implications of high-dimensional geometry for neurocomputing.
[MML 2021. Mathematics of Machine Learning. Bielefeld, 04.08.2021]
Method of presentation: Zvaná přednáška
Event organizer: Max Planck Institute for Mathematics in the Sciences
Institutional support: RVO:67985807
https://www.mis.mpg.de/calendar/conferences/2021/mml2021/speakers1.html
Permanent Link: https://hdl.handle.net/11104/0333720

0561178 - ÚI 2023 eng A - Abstract
Bílková, Marta
Many-valued paraconsistent logics for uncertainty.
[North American ASL meeting 2021 - special session D: Algebraic logic. Online, 22.06.2021]
Method of presentation: Přednáška
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333855

0561548 - ÚI 2023 eng A - Abstract
Campos Araújo, Pedro
Tight Hamilton cycles in uniformly dense hypergraphs.
[Research Seminar Combinatorics. Berlin, 24.11.2021]
Method of presentation: Zvaná přednáška
Event organizer: Freie Universität Berlin
http://www.mi.fu-berlin.de/en/math/groups/geokomb/Research-Seminar/index.html#PedroAraujo
Permanent Link: https://hdl.handle.net/11104/0334135

0561175 - ÚI 2023 eng A - Abstract
Bílková, Marta
Two-layered Belnapian logics for uncertainty.
[NCMPLK 2021. Non-Classical Modal and Predicate Logics /3./. Bochum, 23.11.2021]
Method of presentation: Zvaná přednáška
URL events: https://sites.google.com/view/ncmpl2021/home
Institutional support: RVO:67985807
https://sites.google.com/view/ncmpl2021/invited-speakers
Permanent Link: https://hdl.handle.net/11104/0333852

0561162 - ÚI 2023 eng A - Abstract
Martinková, Patrícia
Advanced analysis of educational measurement.
[Seminar of Department of Didactics of Mathematics. Prague, 02.05.2019]
Method of presentation: Přednáška
Event organizer: MFF UK
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333842

0561161 - ÚI 2023 eng A - Abstract
Martinková, Patrícia
Assessing disparities in student and applicant ratings.
[Seminář z aplikované matematiky. Brno, 14.05.2019]
Method of presentation: Zvaná přednáška
Event organizer: MUNI - Ústav matematiky a statistiky
URL events: https://www.math.muni.cz/aktuality/archiv-aktualit.html?start=174
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333841

0561043 - ÚI 2023 CZ eng A - Abstract
Šanda, Pavel

Bidirectional oscillatory interactions during NREM sleep.
Workshop on Modelling of Brain Activity. Book of Abstracts. Prague: Czech Academy of Sciences, 2019. s. 3-3.
[Workshop on Modelling of Brain Activity. 17.12.2019-18.12.2019, Prague]
Institutional support: RVO:67985807
http://cobra.cs.cas.cz/WMBA_2019/
Permanent Link: https://hdl.handle.net/11104/0333797

0560951 - ÚI 2023 eng A - Abstract
Kůrková, Věra
Complexity of shallow and deep networks. Tutorial.
[INNSBDDL 2019: INNS Big Data and Deep Learning /4./. Sestri Levante, 16.04.2019]
Method of presentation: Zvaná přednáška
Event organizer: International Neural Network Society
Institutional support: RVO:67985807
https://innsbddl2019.wordpress.com/tutorial/
Permanent Link: https://hdl.handle.net/11104/0333722

0561159 - ÚI 2023 eng A - Abstract
Martinková, Patrícia
Deeper analysis of group disparities in ratings motivated by simulated and real data examples.
[CSSS Anniversary Conference /20./. Washington, 23.05.2019]
Method of presentation: Zvaná přednáška
Event organizer: Center for Statistics and the Social Sciences
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333843

0560950 - ÚI 2023 eng A - Abstract
Kůrková, Věra
Limitations of shallow networks. Keynote plenary lecture.
[IJCNN 2019. International Joint Conference on Neural Networks /32./. Budapest, 14.07.2019]
Method of presentation: Zvaná přednáška
Event organizer: International Neural Network Society
Institutional support: RVO:67985807
https://injcnn.memberclicks.net/assets/IJCNN2019PreliminaryProgramme.pdf
Permanent Link: https://hdl.handle.net/11104/0333721

0561016 - ÚI 2023 eng A - Abstract
Kůrková, Věra
Lower bounds on complexity of shallow networks.
[Workshop on Dynamical Systems and Brain Inspired Information Processing. Konstanz, 31.07.2019]
Method of presentation: Zvaná přednáška
Institutional support: RVO:67985807
https://juanpabloortegalahuerta.files.wordpress.com/2022/02/workshop_konstanz.pdf
Permanent Link: https://hdl.handle.net/11104/0333764

0561017 - ÚI 2023 cze A - Abstract
Vidnerová, Petra
Od perceptronu k hlubokým neuronovým sítím.
[Workshop Teorie a praxe statistického zpracování dat. Staré Město pod Sněžníkem, 21.11.2019]
Method of presentation: Zvaná přednáška
Event organizer: Přírodovědecká fakulta Univerzity Palackého
URL events: https://kma.upol.cz/veda-vyzkum-projekty/konference/statisticky-workshop/
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333765

0560946 - ÚI 2023 eng A - Abstract
Haniková, Zuzana
Structural completeness in MV and product algebras with truth constants.
[WARU 2019. Workshop on Admissible Rules and Unification III. Prague, 11.05.2019]
Method of presentation: Zvaná přednáška
Event organizer: Institute of Philosophy of the Czech Academy of Sciences
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333717

0561018 - ÚI 2023 eng A - Abstract
Vidnerová, Petra
Adversarial examples - vulnerability of machine learning methods and prevention.
[Friday Seminars of Department of Image Processing. Prague, 06.04.2018]
Method of presentation: Zvaná přednáška
Event organizer: Department of Image Processing, UTIA
URL events: http://zoi.utia.cas.cz/node/1037
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333766

0560929 - ÚI 2023 eng A - Abstract
Šileikis, Matas
Embedding the Uniform Random Graph into the Bipartite Regular Random Graph.
[Minisymposium "Discrete random processes" at SIAM Conference on Discrete Mathematics. Denver, 04.06.2018]
Method of presentation: Zvaná přednáška
Event organizer: SIAM Activity Group on Discrete Mathematics
URL events: http://www.siam.org/meetings/dm18/
Institutional support: RVO:67985807
https://archive.siam.org/meetings/dm18/dm18_program.pdf
Permanent Link: https://hdl.handle.net/11104/0333702

0561163 - ÚI 2023 eng A - Abstract
Martinková, Patrícia
ShinyItemAnalysis for psychometric training and to enforce routine analysis of educational tests.
[R meetup Warsaw. Warsaw, 24.05.2018]
Method of presentation: Zvaná přednáška
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333844

0561044 - ÚI 2023 eng A - Abstract
Hartman, David
On equality of two classes of homomorphism-homogeneous relational structures.
[Banff workshop 18w5180 - Unifying Themes in Ramsey Theory. Banff, 18.11.2018]
Method of presentation: Zvaná přednáška
Event organizer: Banff International Research Station for Mathematical Innovation and Discovery
Institutional support: RVO:67985807
http://www.birs.ca/events/2018/5-day-workshops/18w5180
Permanent Link: https://hdl.handle.net/11104/0333798

0560684 - ÚI 2023 eng A - Abstract
Brabec, Marek
Semiparametric model for short term effects of air pollution upon asthma symptoms exacerbations. ISCB CASc award.
[Joint ISCB/ASC Meeting. Melbourne, 26.08.2018]
Method of presentation: Zvaná přednáška
Event organizer: Statistical Society of Australia
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333543

0560687 - ÚI 2023 eng A - Abstract
Holeňa, Martin
Knowledge discovery for black-box optimization.
[ISCAMI 2017. International Student Conference on Applied Mathematics and Informatics. Malenovice, 08.06.2017]
Method of presentation: Zvaná přednáška
Event organizer: Czech Technical University
Institutional support: RVO:67985807
https://irafm.osu.cz/iscami2017/Text/invited2b81.php?MenuItemId=3
Permanent Link: https://hdl.handle.net/11104/0333545

0560931 - ÚI 2023 eng A - Abstract
Duintjer Tebbens, Jurjen - Meurant, G.
On admissible eigenvalue approximations from Krylov subspace methods for non-normal matrices.
[Crouzeix's conjecture workshop. San Jose, 31.07.2017]
Method of presentation: Zvaná přednáška
Event organizer: American Institute of Mathematics
http://aimath.org/workshops/upcoming/crouzeix/
Permanent Link: https://hdl.handle.net/11104/0333704

0560825 - ÚI 2023 cze A - Abstract
Kalina, Jan
Statistické usuzování a jeho význam v ekonomii.
[Přednáška pro studenty. České Budějovice, 12.10.2017]
Method of presentation: Zvaná přednáška
Event organizer: Jihočeská univerzita v Českých Budějovicích
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333608

0560952 - ÚI 2023 eng A - Abstract
Kůrková, Věra
Some Implications of interval approach to dimension for network complexity.
[ESCIM 2017. European Symposium on Computational Intelligence and Mathematics /9./. Faro, 04.08.2017]
Method of presentation: Zvaná přednáška
Institutional support: RVO:67985807
http://escim2017.uca.es/program/keynote-speakers/
Permanent Link: https://hdl.handle.net/11104/0333723

0561171 - ÚI 2023 eng A - Abstract
Martinková, Patrícia
Assessment of clinical outcomes in multiple sclerosis: Challenges for international comparative studies.
[Workshop "Different Approaches in Neurorehabilitation and Their Impact on Clinical Improvements of Neurological Patients. Prague, 26.05.2016]
Method of presentation: Přednáška
Event organizer: Third medical faculty, Charles University
URL events: https://www.lf3.cuni.cz/3LF-104.html?event=13163&lang=cz
Institutional support: RVO:67985807
https://www.lf3.cuni.cz/UDALOSTI-13163-version1-rehab_program_02elektro.pdf
Permanent Link: https://hdl.handle.net/11104/0333848

0560953 - ÚI 2023 eng A - Abstract
Kůrková, Věra
Limitations of shallow networks. Keynote plenary lecture.
[ICANN 2016. International Conference on Artificial Neural Networks /25./. Barcelona, 06.09.2016]
Method of presentation: Zvaná přednáška
Event organizer: BarcelonaTech, Universitat Polit`ecnica de Catalunya
Institutional support: RVO:67985807
https://e-nns.org/icann2016/index.php/conference-programme/keynote-speakers/
Permanent Link: https://hdl.handle.net/11104/0333724

0561170 - ÚI 2023 cze A - Abstract
Martinková, Patrícia
Statistika pro interdisciplinární výzkum.
[Členská schůze České statistické společnosti. Praha, 18.01.2016]
Method of presentation: Zvaná přednáška
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333846

0560939 - ÚI 2023 eng A - Abstract
Paluš, Milan
Cross-scale Information transfer: Atmospheric dynamics.
[Causality, Information Transfer and Dynamical Networks. Dresden, 12.05.2014]
Method of presentation: Zvaná přednáška
Event organizer: Max Planck Institute for the Physics of Complex Systems
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333710

0560943 - ÚI 2023 eng A - Abstract
Haniková, Zuzana
Syntactic fragments in FLew-algebras.
[Coherence and Truth. In memoriam Franco Montagna. Pontignano, 16.12.2015]
Method of presentation: Zvaná přednáška
Event organizer: University of Siena
URL events: https://www.silfs.it/en/coherence-and-truth-in-memoriam-franco-montagna-16-18-dicembre-2015-pontignano-siena-italy-2/
Institutional support: RVO:67985807
http://www.ailalogica.it/pdf/franco-montagna-en.pdf
Permanent Link: https://hdl.handle.net/11104/0333714

0561501 - ÚI 2023 eng A - Abstract
Hlaváčková-Schindler, Kateřina
Granger Causality for ill-posed problems: Methods, ideas and application in life sciences.
[International Conference on Statistics and Causality. Vienna, 23.05.2014]
Method of presentation: Zvaná přednáška
Event organizer: University of Vienna
URL events: https://statistics-and-causality.univie.ac.at/
Permanent Link: https://hdl.handle.net/11104/0334095

0560932 - ÚI 2023 BE eng A - Abstract
Duintjer Tebbens, Jurjen - Meurant, G.
On the convergence curves that can be generated by restarted GMRES.
Householder Symposium XIX. Abstracts. Katholieke Universiteit Leuven, 2014. s. 68-69.
[Householder Symposium /19./. 08.06.2014-13.06.2014, Spa]
Permanent Link: https://hdl.handle.net/11104/0333705

0561172 - ÚI 2023 eng A - Abstract
Martinková, Patrícia
Researching reliability estimates in the context of Czech admission tests.
[OLF travel award. UC Merced, UC Berkeley, and UCLA, 2014]
Method of presentation: Přednáška
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333849

0560940 - ÚI 2023 eng A - Abstract
Paluš, Milan
Lectures on information theory, dynamical systems, synchronization and causality (5 hours).
[Summer school on Graphical models for the characterization of information flow in complex networks: Application in neuroimaging. Grenoble, 08.07.2013]
Method of presentation: Zvaná přednáška
Event organizer: Gipsa-lab
Institutional support: RVO:67985807
http://www.gipsa-lab.fr/summerschool/GMIneuro/
Permanent Link: https://hdl.handle.net/11104/0333711

0560944 - ÚI 2023 eng A - Abstract
Haniková, Zuzana
Set theories in many-valued logics.
[Postgraduate workshop on Alternative Set Theories. Amsterdam, 22.06.2013]
Method of presentation: Zvaná přednáška
Event organizer: University of Amsterdam
Institutional support: RVO:67985807
https://www.math.uni-hamburg.de/home/loewe/AST2013/
Permanent Link: https://hdl.handle.net/11104/0333715

0560688 - ÚI 2023 eng A - Abstract
Holeňa, Martin
Fuzzification of some Statistical Principles of GUHA.
[Beauty of Logic II. Conference in honour of Petr Hajek's 70th birthday. Prague, 06.02.2010]
Method of presentation: Přednáška
Event organizer: Institute of Computer Science AS CR
Institutional support: RVO:67985807
http://www.cs.cas.cz/beautyoflogic/
Permanent Link: https://hdl.handle.net/11104/0333546

0560930 - ÚI 2023 eng A - Abstract
Šíma, Jiří
Computational resources in neural network models. Tutorial.
[ICONIP 2008. International Conference on Neural Information Processing /15./. Auckland, 25.11.2008-28.11.2008]
Method of presentation: Zvaná přednáška
Event organizer: Asian Pacific Neural Network Assembly
Institutional support: RVO:67985807
https://www.cs.cas.cz/~sima/tutresnn.pdf
Permanent Link: https://hdl.handle.net/11104/0333703

0559897 - ÚI 2023 CZ cze A - Abstract
Fabián, Zdeněk
O rozděleních s těžkými chvosty.
ROBUST 2008. Sborník abstraktů. Praha: JČMF, 2008. s. 15-15.
[ROBUST 2008. Letní škola JČMF /15./. 08.09.2008-12.09.2008, Pribylina]
Institutional research plan: CEZ:AV0Z10300504
Permanent Link: https://hdl.handle.net/11104/0333024

0561132 - ÚI 2023 eng A - Abstract
Šíma, Jiří
Energy-Based Computation with Symmetric Hopfield Nets.
[NATO Advanced Research Workshop Limitations and Future Trends in Neural Computation. Siena, 22.08.2001]
Method of presentation: Zvaná přednáška
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333817

0561165 - ÚI 2023 eng A - Abstract

Martinková, Patrícia

Towards effective and equitable assessment with ShinyItemAnalysis.
[4EU Flagship workshop. Prague]

Method of presentation: Přednáška
Event organizer: Charles University
Institutional support: RVO:67985807
Permanent Link: https://hdl.handle.net/11104/0333845