

## References

- Bartoszuk, M. and Gagolewski, M. (2014). A fuzzy R code similarity detection algorithm. In Laurent, A. et al., editors, *Information Processing and Management of Uncertainty in Knowledge-Based Systems, Part III*, volume 444 of *Communications in Computer and Information Science*, pages 21–30. Springer. doi:10.1007/978-3-319-08852-5\_3.
- Bartoszuk, M. and Gagolewski, M. (2015). Detecting similarity of R functions via a fusion of multiple heuristic methods. In Alonso, J., Bustince, H., and Reformat, M., editors, *Proc. IFSA/EUSFLAT'15*, pages 419–426. Atlantis Press. doi:10.2991/ifsa-eusflat-15.2015.61.
- Bartoszuk, M. and Gagolewski, M. (2017). Binary aggregation functions in software plagiarism detection. In *Proc. FUZZ-IEEE'17*. IEEE. doi:10.1109/FUZZ-IEEE.2017.8015582. no. 8015582.
- Bartoszuk, M. and Gagolewski, M. (2020). SimilaR: R code clone and plagiarism detection. *R Journal*, **12**(1), 367–385. doi:10.32614/RJ-2020-017. URL <https://CRAN.R-project.org/package=SimilaR>.
- Bartoszuk, M. and Gagolewski, M. (2021). T-norms or t-conorms? How to aggregate similarity degrees for plagiarism detection. *Knowledge-Based Systems*, **231**, 107427. doi:10.1016/j.knsys.2021.107427.
- Bartoszuk, M., Beliakov, G., Gagolewski, M., and James, S. (2016a). Fitting aggregation functions to data: Part I – Linearization and regularization. In Carvalho, J. et al., editors, *Information Processing and Management of Uncertainty in Knowledge-Based Systems, Part II*, volume 611 of *Communications in Computer and Information Science*, pages 767–779. Springer. doi:10.1007/978-3-319-40581-0\_62.
- Bartoszuk, M., Beliakov, G., Gagolewski, M., and James, S. (2016b). Fitting aggregation functions to data: Part II – Idempotization. In Carvalho, J. et al., editors, *Information Processing and Management of Uncertainty in Knowledge-Based Systems, Part II*, volume 611 of *Communications in Computer and Information Science*, pages 780–789. Springer. doi:10.1007/978-3-319-40581-0\_63.
- Beliakov, G., Gagolewski, M., and James, S. (2016). Penalty-based and other representations of economic inequality. *International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems*, **24**(Suppl.1), 1–23. doi:10.1142/S0218488516400018.
- Beliakov, G., Gagolewski, M., and James, S. (2018). Least median of squares (LMS) and least trimmed squares (LTS) fitting for the weighted arithmetic mean. In Medina, J. et al., editors, *Information Processing and Management of Uncertainty in Knowledge-Based Systems. Theory and Foundations*, pages 367–378. Springer. doi:10.1007/978-3-319-91476-3\_31.
- Beliakov, G., Gagolewski, M., and James, S. (2019a). Aggregation on ordinal scales with the Sugeno integral for biomedical applications. *Information Sciences*, **501**, 377–387. doi:10.1016/j.ins.2019.06.023.
- Beliakov, G., Gagolewski, M., James, S., Pace, S., Pastorello, N., Thilliez, E., and Vasa, R. (2019b). Measuring traffic congestion: An approach based on learning weighted inequality, spread and aggregation indices from comparison data. *Applied Soft Computing*, **67**, 910–919. doi:10.1016/j.asoc.2017.07.014.
- Beliakov, G., Gagolewski, M., and James, S. (2020a). Robust fitting for the Sugeno integral with respect to general fuzzy measures. *Information Sciences*, **514**, 449–461. doi:10.1016/j.ins.2019.11.024.
- Beliakov, G., Gagolewski, M., and James, S. (2020b). DC optimization for constructing discrete Sugeno integrals and learning nonadditive measures. *Optimization*, **69**(12), 2515–2534. doi:10.1080/02331934.2019.1705300.
- Beliakov, G., Gagolewski, M., and James, S. (2021). Hierarchical data fusion processes involving the Möbius representation of capacities. *Fuzzy Sets and Systems*. doi:10.1016/j.fss.2021.02.006. in press.
- Cena, A. and Gagolewski, M. (2013a). OM3: Ordered maxitive, minitive, and modular aggregation operators – Part I: Axiomatic analysis under arity-dependence. In Bustince, H. et al., editors, *Aggregation Functions in Theory and in Practise*, volume 228 of *Advances in Intelligent Systems and Computing*, pages 93–103. Springer. doi:10.1007/978-3-642-39165-1\_13.
- Cena, A. and Gagolewski, M. (2013b). OM3: Ordered maxitive, minitive, and modular aggregation operators – Part II: A simulation study. In Bustince, H. et al., editors, *Aggregation Functions in Theory and in Practise*, volume 228 of *Advances in Intelligent Systems and Computing*, pages 105–115. Springer. doi:10.1007/978-3-642-39165-1\_14.

- Cena, A. and Gagolewski, M. (2015a). Clustering and aggregation of informetric data sets. In *Computational methods in data analysis (Proc. ITRIA'15 vol. 1)*, pages 5–26. Institute of Computer Science, Polish Academy of Sciences.
- Cena, A. and Gagolewski, M. (2015b). Aggregation and soft clustering of informetric data. In Baczyński, M., De Baets, B., and Mesiar, R., editors, *Proc. 8th International Summer School on Aggregation Operators (AGOP 2015)*, pages 79–84. University of Silesia, Katowice, Poland. ISBN 978-83-8012-519-3.
- Cena, A. and Gagolewski, M. (2015c). A K-means-like algorithm for informetric data clustering. In Alonso, J., Bustince, H., and Reformat, M., editors, *Proc. IFSA/EUSFLAT'15*, pages 536–543. Atlantis Press. doi:10.2991/ifsa-eusflat-15.2015.77.
- Cena, A. and Gagolewski, M. (2015d). OM3: Ordered maxitive, minitive, and modular aggregation operators – Axiomatic and probabilistic properties in an arity-monotonic setting. *Fuzzy Sets and Systems*, **264**, 138–159. doi:10.1016/j.fss.2014.04.001.
- Cena, A. and Gagolewski, M. (2016). Fuzzy k-minpen clustering and k-nearest-minpen classification procedures incorporating generic distance-based penalty minimizers. In Carvalho, J. et al., editors, *Information Processing and Management of Uncertainty in Knowledge-Based Systems, Part II*, volume 611 of *Communications in Computer and Information Science*, pages 445–456. Springer. doi:10.1007/978-3-319-40581-0\_36.
- Cena, A. and Gagolewski, M. (2017). OWA-based linkage and the Genie correction for hierarchical clustering. In *Proc. FUZZ-IEEE'17*. IEEE. doi:10.1109/FUZZ-IEEE.2017.8015652. no. 8015652.
- Cena, A. and Gagolewski, M. (2020). Genie+OWA: Robustifying hierarchical clustering with OWA-based linkages. *Information Sciences*, **520**, 324–336. doi:10.1016/j.ins.2020.02.025.
- Cena, A., Gagolewski, M., and Mesiar, R. (2015). Problems and challenges of information resources producers' clustering. *Journal of Informetrics*, **9**(2). doi:10.1016/j.joi.2015.02.005.
- Coroianu, L. and Gagolewski, M. (2019). Penalty-based data aggregation in real normed vector spaces. In Halaš, R. et al., editors, *New Trends in Aggregation Theory*, volume 981 of *Advances in Intelligent Systems and Computing*, pages 160–171. Springer. doi:10.1007/978-3-030-19494-9\_15.
- Coroianu, L., Gagolewski, M., and Grzegorzewski, P. (2013). Nearest piecewise linear approximation of fuzzy numbers. *Fuzzy Sets and Systems*, **233**, 26–51. doi:10.1016/j.fss.2013.02.005. URL <https://CRAN.R-project.org/package=FuzzyNumbers>.
- Coroianu, L., Gagolewski, M., Grzegorzewski, P., Adabitar Firozja, M., and Houlari, T. (2014). Piecewise linear approximation of fuzzy numbers preserving the support and core. In Laurent, A. et al., editors, *Information Processing and Management of Uncertainty in Knowledge-Based Systems, Part II*, volume 443 of *Communications in Computer and Information Science*, pages 244–254. Springer. doi:10.1007/978-3-319-08855-6\_25.
- Coroianu, L., Gagolewski, M., and Grzegorzewski, P. (2019). Piecewise linear approximation of fuzzy numbers: Algorithms, arithmetic operations and stability of characteristics. *Soft Computing*, **23**(19), 9491–9505. doi:10.1007/s00500-019-03800-2. URL <https://CRAN.R-project.org/package=FuzzyNumbers>.
- Coroianu, L., Fullér, R., Gagolewski, M., and James, S. (2020). Constrained ordered weighted averaging aggregation with multiple comonotone constraints. *Fuzzy Sets and Systems*, **395**, 21–39. doi:10.1016/j.fss.2019.09.006.
- Ferraro, M. B., Giordani, P., Vantaggi, B., Gagolewski, M., Ángeles Gil, M., Grzegorzewski, P., and Hryniewicz, O., editors (2017). *Soft Methods for Data Science*, volume 456 of *Advances in Intelligent Systems and Computing*. Springer. ISBN 978-3-319-42971-7. doi:10.1007/978-3-319-42972-4.
- Gagolewski, M. (2011a). Bibliometric impact assessment with R and the CITAN package. *Journal of Informetrics*, **5**(4), 678–692. doi:10.1016/j.joi.2011.06.006. URL <https://CRAN.R-project.org/package=CITAN>.
- Gagolewski, M. (2011b). *Aggregation operators and their application in a formal model for quality evaluation system of scientific research (Wybrane operatory agregacji i ich zastosowanie w modelu formalnym systemu jakości w nauce)*. PhD thesis, Systems Research Institute, Polish Academy of Sciences. in Polish.
- Gagolewski, M. (2012). On the relation between effort-dominating and symmetric minitive aggregation operators. In Greco, S. et al., editors, *Advances in Computational Intelligence, Part III*, volume 299 of *Communications in Computer and Information Science*, pages 276–285. Springer. doi:10.1007/978-3-642-31718-7\_29.

- Gagolewski, M. (2013a). Statistical hypothesis test for the difference between Hirsch indices of two Pareto-distributed random samples. In Kruse, R. et al., editors, *Synergies of Soft Computing and Statistics for Intelligent Data Analysis*, volume 190 of *Advances in Intelligent Systems and Computing*, pages 359–367. Springer. doi:10.1007/978-3-642-33042-1\_39.
- Gagolewski, M. (2013b). Scientific impact assessment cannot be fair. *Journal of Informetrics*, **7**(4), 792–802. doi:10.1016/j.joi.2013.07.001.
- Gagolewski, M. (2013c). On the relationship between symmetric maxitive, minitive, and modular aggregation operators. *Information Sciences*, **221**, 170–180. doi:10.1016/j.ins.2012.09.005.
- Gagolewski, M. (2014). *Programowanie w języku R. Analiza danych, obliczenia, symulacje (R Programming. Data Analysis, Computing, Simulations)*. Wydawnictwo Naukowe PWN, Warsaw, Poland, 1st edition. ISBN 978-83-01-17461-3. in Polish.
- Gagolewski, M. (2015a). *Data Fusion: Theory, Methods, and Applications*. Institute of Computer Science, Polish Academy of Sciences, Warsaw, Poland. ISBN 978-83-63159-20-7.
- Gagolewski, M. (2015b). Sugeno integral-based confidence intervals for the theoretical h-index. In Grzegorzewski, P. et al., editors, *Strengthening Links Between Data Analysis and Soft Computing*, volume 315 of *Advances in Intelligent Systems and Computing*, pages 233–240. Springer. doi:10.1007/978-3-319-10765-3\_28.
- Gagolewski, M. (2015c). Some issues in aggregation of multidimensional data. In Baczyński, M., De Baets, B., and Mesiar, R., editors, *Proc. 8th International Summer School on Aggregation Operators (AGOP 2015)*, pages 127–132. University of Silesia, Katowice, Poland. ISBN 978-83-8012-519-3.
- Gagolewski, M. (2015d). Normalized  $WD_pWAM$  and  $WD_pOWA$  spread measures. In Alonso, J., Bustince, H., and Reformat, M., editors, *Proc. IFSA/EUSFLAT'15*, pages 210–216. Atlantis Press. doi:10.2991/ifsaeusflat-15.2015.32.
- Gagolewski, M. (2015e). Spread measures and their relation to aggregation functions. *European Journal of Operational Research*, **241**(2), 469–477. doi:10.1016/j.ejor.2014.08.034.
- Gagolewski, M. (2016a). *Programowanie w języku R. Analiza danych, obliczenia, symulacje (R Programming. Data Analysis, Computing, Simulations)*. Wydawnictwo Naukowe PWN, Warsaw, Poland, 2nd edition. ISBN 978-83-01-18939-6. URL [https://github.com/gagolews/Programowanie\\_w\\_jezyku\\_R/](https://github.com/gagolews/Programowanie_w_jezyku_R/). in Polish.
- Gagolewski, M. (2016b). *Algorytmy i postawy programowania w języku C++ (Introduction to Algorithms and Programming in C++)*. e-book, Warsaw, Poland. URL <https://github.com/gagolews/aipp>. in Polish.
- Gagolewski, M. (2017). Penalty-based aggregation of multidimensional data. *Fuzzy Sets and Systems*, **325**, 4–20. doi:10.1016/j.fss.2016.12.009.
- Gagolewski, M. (2021a). genieclust: Fast and robust hierarchical clustering. *SoftwareX*, **15**, 100722. doi:10.1016/j.softx.2021.100722. URL <https://genieclust.gagolewski.com>.
- Gagolewski, M. (2021b). *Lightweight Machine Learning Classics with R*. e-book. doi:10.5281/zenodo.4539689. URL <https://lmlcr.gagolewski.com/>. draft v0.2.1.
- Gagolewski, M. (2022). stringi: Fast and portable character string processing in R. *Journal of Statistical Software*. URL <https://stringi.gagolewski.com>. in press.
- Gagolewski, M. and Grzegorzewski, P. (2009a). A geometric approach to the construction of scientific impact indices. *Scientometrics*, **81**(3), 617–634. doi:10.1007/s11192-008-2253-y.
- Gagolewski, M. and Grzegorzewski, P. (2009b). Possible and necessary h-indices. In Carvalho, J. P. et al., editors, *Proc. IFSA/EUSFLAT'09*, pages 1691–1695. IFSA.
- Gagolewski, M. and Grzegorzewski, P. (2009c). O pewnym uogólnieniu indeksu hirscha. In Kawalec, P. and Lipski, P., editors, *Kadry i infrastruktura nowoczesnej nauki: Teoria i praktyka, Proc. 1st Intl. Conf. Zarządzanie Nauką*, volume 2, pages 15–29. Wydawnictwo Lubelskiej Szkoły Biznesu, Lublin. ISBN 978-83-61671-12-1. in Polish.
- Gagolewski, M. and Grzegorzewski, P. (2010a). Arity-monotonic extended aggregation operators. In Hüllermeier, E. et al., editors, *Information Processing and Management of Uncertainty in Knowledge-Based Systems*, volume 80 of *Communications in Computer and Information Science*, pages 693–702. Springer. doi:10.1007/978-3-642-14055-6\_73.

- Gagolewski, M. and Grzegorzewski, P. (2010b). Metody i problemy naukometrii (methods and problems of scientometrics). In Rowiński, T. and Tadeusiewicz, R., editors, *Psychologia i informatyka. Synergia i kontradycje*, pages 103–125. Wyd. UKSW, Warsaw, Poland. ISBN 978-83-707-2679-9. in Polish.
- Gagolewski, M. and Grzegorzewski, P. (2010c). S-statistics and their basic properties. In Borgelt, C. et al., editors, *Combining Soft Computing and Statistical Methods in Data Analysis*, volume 77 of *Advances in Intelligent and Soft Computing*, pages 281–288. Springer. doi:10.1007/978-3-642-14746-3\_35.
- Gagolewski, M. and Grzegorzewski, P. (2011a). Axiomatic characterizations of (quasi-) L-statistics and S-statistics and the Producer Assessment Problem. In Galichet, S. et al., editors, *Proc. EUSFLAT/LFA'11*, pages 53–58. Atlantis Press. doi:10.2991/eusflat.2011.112.
- Gagolewski, M. and Grzegorzewski, P. (2011b). Possibilistic analysis of arity-monotonic aggregation operators and its relation to bibliometric impact assessment of individuals. *International Journal of Approximate Reasoning*, **52**(9), 1312–1324. doi:10.1016/j.ijar.2011.01.010.
- Gagolewski, M. and James, S. (2018). Fitting symmetric fuzzy measures for discrete Sugeno integration. In Kacprzyk, J. et al., editors, *Advances in Fuzzy Logic and Technology 2017*, volume 642 of *Advances in Intelligent Systems and Computing*, pages 104–116. Springer. doi:10.1007/978-3-319-66824-6\_10.
- Gagolewski, M. and Lasek, J. (2015a). The use of fuzzy relations in the assessment of information resources producers' performance. In *Proc. 7th IEEE International Conference Intelligent Systems IS'2014, Vol. 2: Tools, Architectures, Systems, Applications*, volume 323 of *Advances in Intelligent Systems and Computing*, pages 289–300. Springer. doi:10.1007/978-3-319-11310-4\_25.
- Gagolewski, M. and Lasek, J. (2015b). Learning experts' preferences from informetric data. In Alonso, J., Bustince, H., and Reformat, M., editors, *Proc. IFSA/EUSFLAT'15*, pages 484–491. Atlantis Press. doi:10.2991/ifsa-eusflat-15.2015.70.
- Gagolewski, M. and Mesiar, R. (2012). Aggregating different paper quality measures with a generalized h-index. *Journal of Informetrics*, **6**(4), 566–579. doi:10.1016/j.joi.2012.05.001.
- Gagolewski, M. and Mesiar, R. (2014). Monotone measures and universal integrals in a uniform framework for the scientific impact assessment problem. *Information Sciences*, **263**, 166–174. doi:10.1016/j.ins.2013.12.004.
- Gagolewski, M., Dębski, M., and Nowakiewicz, M. (2013). Efficient algorithm for computing certain graph-based monotone integrals: The  $l_p$ -indices. In Mesiar, R. and Bacigal, T., editors, *Proc. Uncertainty Modeling*, pages 17–23. STU Bratislava. ISBN ISBN:978-80-227-4067-8.
- Gagolewski, M., Bartoszek, M., and Cena, A. (2016a). *Przetwarzanie i analiza danych w języku Python (Data Processing and Analysis in Python)*. Wydawnictwo Naukowe PWN, Warsaw, Poland. ISBN 978-83-01-18940-2. URL [https://github.com/gagolews/Analiza\\_danych\\_w\\_jezyku\\_Python](https://github.com/gagolews/Analiza_danych_w_jezyku_Python). in Polish.
- Gagolewski, M., Bartoszek, M., and Cena, A. (2016b). Genie: A new, fast, and outlier-resistant hierarchical clustering algorithm. *Information Sciences*, **363**, 8–23. doi:10.1016/j.ins.2016.05.003. URL <https://genieclust.gagolewski.com>.
- Gagolewski, M., Cena, A., and Bartoszek, M. (2016c). Hierarchical clustering via penalty-based aggregation and the Genie approach. In Torra, V. et al., editors, *Modeling Decisions for Artificial Intelligence*, volume 9880 of *Lecture Notes in Artificial Intelligence*, pages 191–202. Springer. doi:10.1007/978-3-319-45656-0\_16.
- Gagolewski, M., James, S., and Beliakov, G. (2019). Supervised learning to aggregate data with the Sugeno integral. *IEEE Transactions on Fuzzy Systems*, **27**(4), 810–815. doi:10.1109/TFUZZ.2019.2895565.
- Gagolewski, M., Pérez-Fernández, R., and De Baets, B. (2020). An inherent difficulty in the aggregation of multidimensional data. *IEEE Transactions on Fuzzy Systems*, **28**, 602–606. doi:10.1109/TFUZZ.2019.2908135.
- Gagolewski, M., Bartoszek, M., and Cena, A. (2021). Are cluster validity measures (in)valid? *Information Sciences*, **581**, 620–636. doi:10.1016/j.ins.2021.10.004. URL [https://github.com/gagolews/optim\\_cvi](https://github.com/gagolews/optim_cvi).
- Geras, A., Siudem, G., and Gagolewski, M. (2020). Should we introduce a dislike button for academic papers? *Journal of the Association for Information Science and Technology*, **71**(2), 221–229. doi:10.1002/ASI.24231.
- Grzegorzewski, P., Gagolewski, M., and Bobeck-Wesołowska, K. (2014). *Wnioskowanie statystyczne z wykorzystaniem środowiska R (Statistical Inference with R)*. Politechnika Warszawska, Warsaw, Poland. ISBN 978-83-93-72601-1. in Polish.

- Grzegorzewski, P., Gagolewski, M., Hryniewicz, O., and Ángeles Gil, M., editors (2015). *Strengthening Links Between Data Analysis and Soft Computing*, volume 315 of *Advances in Intelligent Systems and Computing*. Springer. ISBN 978-3-319-10764-6. doi:10.1007/978-3-319-10765-3.
- Halaš, R., Gagolewski, M., and Mesiar, R., editors (2019). *New Trends in Aggregation Theory*, volume 981 of *Advances in Intelligent Systems and Computing*. Springer. ISBN 978-3-030-19493-2. doi:10.1007/978-3-030-19494-9.
- Lasek, J. and Gagolewski, M. (2015a). Estimation of tournament metrics for association football league formats. In *Selected problems in information technologies (Proc. ITRIA'15 vol. 2)*, pages 67–78. Institute of Computer Science, Polish Academy of Sciences.
- Lasek, J. and Gagolewski, M. (2015b). The winning solution to the AAIA'15 Data Mining Competition: Tagging firefighter activities at a fire scene. In Ganzha, M., Maciaszek, L., and Paprzycki, M., editors, *Proc. FedCSIS'15*, pages 375–380. IEEE. doi:10.15439/2015F418.
- Lasek, J. and Gagolewski, M. (2018). The efficacy of league formats in ranking teams. *Statistical Modelling*, **18** (5–6), 411–435. doi:10.1177/1471082X18798426.
- Lasek, J. and Gagolewski, M. (2021). Interpretable sport team rating models based on the gradient descent algorithm. *International Journal of Forecasting*, **37**(3), 1061–1071. doi:10.1016/j.ijforecast.2020.11.008.
- Lasek, J., Szlavik, Z., Gagolewski, M., and Bhulai, S. (2016). How to improve a team's position in the FIFA ranking – A simulation study. *Journal of Applied Statistics*, **43**(7), 1349–1368. doi:10.1080/02664763.2015.1100593.
- Mesiar, R. and Gagolewski, M. (2016). H-index and other Sugeno integrals: Some defects and their compensation. *IEEE Transactions on Fuzzy Systems*, **24**(6), 1668–1672. doi:10.1109/TFUZZ.2016.2516579.
- Pérez-Fernández, R., De Baets, B., and Gagolewski, M. (2019). A taxonomy of monotonicity properties for the aggregation of multidimensional data. *Information Fusion*, **52**, 322–334. doi:10.1016/j.inffus.2019.05.006.
- Pérez-Fernández, R., Gagolewski, M., and De Baets, B. (2021). On the aggregation of compositional data. *Information Fusion*, **73**, 103–110. doi:10.1016/j.inffus.2021.02.021.
- Rowiński, T. and Gagolewski, M. (2007). Preferencje i postawy wobec pomocy online (attitudes towards online counselling and psychotherapy). *Studia Psychologica UKSW*, **7**, 195–210. in Polish.
- Rowiński, T. and Gagolewski, M. (2011). Internet a kryzys. In Jankowska, M. and Starzomska, M., editors, *Kryzys: Pułapka czy szansa?*, pages 211–224. WN Akapit, Warsaw, Poland. ISBN 978-83-609-5885-8. in Polish.
- Siudem, G., Żogała Siudem, B., Cena, A., and Gagolewski, M. (2020). Three dimensions of scientific impact. *Proceedings of the National Academy of Sciences of the United States of America (PNAS)*, **117**, 13896–13900. doi:10.1073/pnas.2001064117.
- Żogała Siudem, B., Siudem, G., Cena, A., and Gagolewski, M. (2016). Agent-based model for the bibliometric h-index – Exact solution. *European Physical Journal B*, **89**(21). doi:10.1140/epjb/e2015-60757-1.