

List of publications: Optimization

- [1] Cristian Daniel Alecsa and Szilárd Csaba László. “Tikhonov regularization of a perturbed heavy ball system with vanishing damping”. In: *SIAM Journal on Optimization* 31.4 (2021), pp. 2921–2954. URL: <https://doi.org/10.1137/20M1382027>.
- [2] Cristian Daniel Alecsa. “The rate of convergence of optimization algorithms obtained via discretizations of heavy ball dynamical systems for convex optimization problems”. In: *Optimization* 71.13 (2022), pp. 3909–3939. URL: <https://doi.org/10.1080/02331934.2021.1925896>.
- [3] Cristian Daniel Alecsa, Szilárd Csaba László, and Adrian Viorel. “A gradient-type algorithm with backward inertial steps associated to a nonconvex minimization problem”. In: *Numerical Algorithms* 84.2 (2020), pp. 485–512. URL: <https://doi.org/10.1007/s11075-019-00765-z>.
- [4] Cristian Daniel Alecsa. “A theoretical and empirical study of new adaptive algorithms with additional momentum steps and shifted updates for stochastic non-convex optimization”. In: *Journal of Global Optimization* 93 (2025), pp. 113–173. URL: <https://doi.org/10.1007/s10898-025-01518-0>.
- [5] Cristian Daniel Alecsa, Szilárd Csaba László, and Titus Pința. “An extension of the second order dynamical system that models Nesterov’s convex gradient method”. In: *Applied Mathematics & Optimization* 84.2 (2021), pp. 1687–1716. URL: <https://doi.org/10.1007/s00245-020-09692-1>.
- [6] Adrian Viorel, Cristian D Alecsa, and Titus O Pința. “Asymptotic analysis of a structure-preserving integrator for damped Hamiltonian systems”. In: *Dynamical Systems* 41.7 (2021), pp. 3319–3341. URL: <https://doi.org/10.3934/dcds.2020407>.

List of publications: Data Science

- [7] Vlad Moisoiu, Andrei Stefancu, Stefania D Iancu, Tudor Moisoiu, Luminita Loga, Lucia Dican, Cristian D Alecsa, Imre Boros, Anca Jurj, Delia Dima, et al. “SERS assessment of the cancer-specific methylation pattern of genomic DNA: Towards the detection of acute myeloid

leukemia in patients undergoing hematopoietic stem cell transplantation”. In: *Analytical and Bioanalytical Chemistry* 411 (2019), pp. 7907–7913. URL: <https://doi.org/10.1007/s00216-019-02213-2>.

- [8] Vlad Moisoiu, Andreea Socaciu, Andrei Stefancu, Stefania D Iancu, Imre Boros, Cristian D Alecsa, Claudiu Rachieriu, Angelica R Chiorean, Daniela Eniu, Nicolae Leopold, et al. “Breast cancer diagnosis by surface-enhanced Raman scattering (SERS) of urine”. In: *Applied Sciences* 9.4 (2019), p. 806. URL: <https://doi.org/10.3390/app9040806>.

List of publications: Machine Learning

- [9] Cristian Daniel Alecsa, Titus Pința, and Imre Boros. “New optimization algorithms for neural network training using operator splitting techniques”. In: *Neural Networks* 126 (2020), pp. 178–190. URL: <https://doi.org/10.1016/j.neunet.2020.03.018>.
- [10] Catalin Stoean, Nebojsa Bacanin, Ruxandra Stoean, Leonard Ionescu, Cristian Alecsa, Mircea Hotoleanu, Miguel Atencia, and Gonzalo Joya. “On using perceptual loss within the U-Net architecture for the semantic inpainting of textile artefacts with traditional motifs”. In: *2022 24th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC)*. IEEE. 2022, pp. 276–283. URL: <https://doi.org/10.1109/SYNASC57785.2022.00051>.
- [11] Cristian Daniel Alecsa. “OF-AE: Oblique Forest AutoEncoders”. In: *Artificial Intelligence Applications and Innovations*. Ed. by Ilias Maglogiannis, Lazaros Iliadis, John MacIntyre, and Manuel Dominguez. Cham: Springer Nature Switzerland, 2023, pp. 207–219. ISBN: 978-3-031-34107-6. URL: <https://doi.org/10.1007/9>.
- [12] Cristian Daniel Alecsa. “G-KMM: A flexible kernel mean matching optimization method for density ratio estimation involving multiple train & test datasets”. In: *CS & IT Conference Proceedings, 4th International Conference on Machine Learning Techniques and Data Science (MLDS 2023)*. Ed. by David C. Wyld and Dhinakaran Nagamalai. Vol. 13. 24. AIRCC Publishing Corporation, 2023, pp. 287–306. ISBN: 978-1-923107-13-7. URL: <https://aircconline.com/csit/csit1324.pdf>.

List of publications: Scientific Computing

- [13] Cristian D Alecsa, Imre Boros, Florian Frank, Peter Knabner, Mihai Nechita, Alexander Prechtel, Andreas Rupp, and Nicolae Suciu. “Numerical benchmark study for flow in highly heterogeneous aquifers”. In: *Advances in Water Resources* 138 (2020), p. 103558. URL: <https://doi.org/10.1016/j.advwatres.2020.103558>.

List of publications: Nonlinear Analysis

- [14] Cristian Daniel Alecsa and Adrian Petruşel. “Some variants of Ćirić’s multi-valued contraction principle”. In: *Annals of West University of Timisoara-Mathematics and Computer Science* 57.1 (2020), pp. 23–42. URL: <https://doi.org/10.2478/awutm-2019-0004>.
- [15] Cristian Alecsa. “Sequences of contractions on cone metric spaces over Banach algebras and applications to nonlinear systems of equations and systems of differential equations”. In: *International Journal of Nonlinear Analysis and Applications* 10.2 (2019), pp. 227–254. URL: <https://dx.doi.org/10.22075/ijnaa.2019.18884.2040>.
- [16] Cristian Daniel Alecsa. “Approximating fixed points for nonlinear generalized mappings using Ishikawa iteration”. In: *Rendiconti del Circolo Matematico di Palermo Series 2* 68 (2019), pp. 163–191. URL: <https://doi.org/10.1007/s12215-018-0349-7>.
- [17] Cristian Daniel Alecsa. “Common fixed points of Presić operators via simulation functions”. In: *Journal of Nonlinear and Convex Analysis* 20.3 (2019), pp. 363–377. URL: <http://www.yokohamapublishers.jp/online2/jncav20-3.html>.
- [18] Cristian Daniel Alecsa. “Some fixed point results regarding convex contractions of Presić type”. In: *Journal of Fixed Point Theory and Applications* 20 (2018), pp. 1–19. URL: <https://doi.org/10.1007/s11784-018-0488-7>.
- [19] Cristian Daniel Alecsa. “Some fixed point results linked to α - β rational contractions and modified multivalued Hardy-Rogers operators”. In: *Journal of Fixed Point Theory* (2018). article ID 3. URL: <http://jfpt.scik.org/issues/201803.pdf>.

- [20] Cristian Alecsa. “On new faster fixed point iterative schemes for contraction operators and comparison of their rate of convergence in convex metric spaces”. In: *International Journal of Nonlinear Analysis and Applications* 8.1 (2017), pp. 353–388. URL: <https://doi.org/10.22075/ijnaa.2017.11144.1543>.
- [21] Cristian Daniel Alecsa. “Stability results and qualitative properties for Mann’s algorithm via admissible perturbations technique”. In: *Applied Analysis and Optimization* 1.2 (2017), pp. 327–344. URL: <http://yokohamapublishers.jp/online2/opaa/vol1/p327.html>.
- [22] Cristian Daniel Alecsa. “Fixed point theorems for generalized contraction mappings on b-rectangular metric spaces”. In: *Studia Universitatis Babeş-Bolyai, Mathematica* 62.4 (2017). URL: <http://dx.doi.org/10.24193/subbmath.2017.4.08>.
- [23] Cristian Daniel Alecsa and Adrian Petrusel. “On some fixed point theorems for multi-valued operators by altering distance technique”. In: *Journal of Nonlinear and Variational Analysis* 1 (2017), pp. 237–251. URL: <http://jnva.biemdas.com/issues/JNVA2017-2-6.pdf>.