Ivan Markovsky's Publications

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Overview

Number of publications per category:

A	scientific monographs	2
B	articles in books	11
C	articles in journals	78
D	articles in conference proceedings	52

Number of citations as of January 21, 2026:

7838   Google Scholar (GS)   h-index 35

Pdf files and computer code, implementing the methods and allowing reproducibility of the results, are available from: `https://imarkovs.github.io/publications.html`

A. Scientific monographs

1. **I. Markovsky**. *Low-Rank Approximation: Algorithms, Implementation, Applications*. Springer, 2019. doi: `10.1007/978-3-319-89620-5`.

2. **I. Markovsky**. *Low-Rank Approximation: Algorithms, Implementation, Applications*. Springer, 2012. doi: `10.1007/978-1-4471-2227-2`.

3. **I. Markovsky**, J. C. Willems, S. Van Huffel, and B. De Moor. *Exact and Approximate Modeling of Linear Systems: A Behavioral Approach*. SIAM, 2006. doi: `10.1137/1.9780898718263`.

B. Articles in monographs (internationally peer reviewed)

1. **I. Markovsky**. "Dynamic measurement". In: *Data-driven filtering and control design: Methods and applications*. IET, 2019. Chap. 6, pp. 97–108. doi: `10.1049/PBCE123E_ch6`.

2. **I. Markovsky** and P.-L. Dragotti. "Using structured low-rank approximation for sparse signal recovery". In: *Latent Variable Analysis and Signal Separation*. Lecture Notes in Computer Science. Springer, 2018, pp. 479–487. doi: `10.1007/978-3-319-93764-9_44`.

3. **I. Markovsky**, A. Fazzi, and N. Guglielmi. "Applications of polynomial common factor computation in signal processing". In: *Latent Variable Analysis and Signal Separation*. Lecture Notes in Computer Science. Springer, 2018, pp. 99–106. doi: `10.1007/978-3-319-93764-9_10`.

4. **I. Markovsky**. "System identification in the behavioral setting: A structured low-rank approximation approach". In: *Latent Variable Analysis and Signal Separation*. Ed. by E. Vincent et al. Vol. 9237. Lecture Notes in Computer Science. Springer, 2015, pp. 235–242. doi: `10.1007/978-3-319-22482-4_27`.

5. **I. Markovsky**. "Rank constrained optimization problems in computer vision". In: *Regularization, Optimization, Kernels, and Support Vector Machines*. Ed. by A. Argyriou J. Suykens M. Signoretto. Pattern Recognition. Chapman & Hall/CRC Machine Learning, 2014. Chap. 13, pp. 293–312. doi: `10.1201/b17558-16`.

6. **I. Markovsky** and K. Usevich. "Nonlinearly structured low-rank approximation". In: *Low-Rank and Sparse Modeling for Visual Analysis*. Ed. by Yun Raymond Fu. Springer, 2014, pp. 1–22. doi: `10.1007/978-3-319-12000-3_1`.

7. **I. Markovsky**. "Algorithms and literate programs for weighted low-rank approximation with missing data". In: ed. by A. Iske et al. Vol. 3. Springer, 2011. Chap. 12, pp. 255–273. doi: `10.1007/978-3-642-16876-5_12`.

8. **I. Markovsky**, A. Amann, and S. Van Huffel. "Application of filtering methods for removal of resuscitation artifacts from human ECG signals". In: *System Identification, Environmental Modelling, and Control System Design*. Ed. by L. Wang, H. Garnier, and T. Jakeman. Springer, 2009. doi: `10.1007/978-0-85729-974-1_14`.

9. **I. Markovsky** and S. Van Huffel. "On weighted structured total least squares". In: *Large-Scale Scientific Computing*. Ed. by I. Lirkov, S. Margenov, and J. Waśniewski. Vol. 3743. Lecture Notes in Computer Science. Springer–Verlag, 2006, pp. 695–702. doi: `10.1007/11666806_80`.

10. A. Kukush, **I. Markovsky**, and S. Van Huffel. "Consistent estimation of an ellipsoid with known center". In: *Comp. Stat. (COMPSTAT)*. Ed. by J. Antoch. Physica–Verlag, 2004, pp. 1369–1376. doi: `10.1007/s00211-004-0526-9`.

11. A. Kukush, **I. Markovsky**, and S. Van Huffel. "On consistent estimators in linear and bilinear multivariate errors-in-variables models". In: *Total Least Squares and Errors-in-Variables Modeling: Analysis, Algorithms and Applications*. Ed. by S. Van Huffel and P. Lemmerling. Kluwer, 2002, pp. 155–164. doi: `10.1007/978-94-017-3552-0_14`.

C. Articles in journals (internationally peer reviewed)

1. **I. Markovsky**. "Project-based teaching: A case study of learning systems theory and signal processing by a dynamic measurements project". In: *IEEE Control Systems Magazine* (2026).

0. **I. Markovsky**, A. Muixí, S. Zlotnik, and P. Diez. "A Behavioral Approach to Direct Data-Driven Fault Detection". In: *Mechanical Systems and Signal Processing* 245 (2026), p. 113802. doi: `10.1016/j.ymssp.2025.113802`.

2. **I. Markovsky**, C. Verhoek, and R. Toth. "The most powerful unfalsified linear parameter-varying model". In: *Automatica* (2026).

3. A. Sasfi, A. Padoan, **I. Markovsky**, and F. Dörfler. "GREAT: Grassmannian REcursive Algorithm for Tracking & Online System Identification". In: *IEEE Trans. Automat. Contr.* 71 (5 2026). doi: `10.1109/TAC.2025.3636986`.

4. C. Verhoek, **I. Markovsky**, and R. Toth. "Direct data-driven interpolation and approximation of linear parameter-varying system trajectories". In: *IFAC Journal of Systems and Control* (2026). doi: `10.1016/j.ifacsc.2025.100352`.

5. J. Wang, L. Hemelhof, **I. Markovsky**, and P. Patrinos. "Fast data-driven iterative learning control for linear system with output disturbance". In: *Journal of the Franklin Institute* 363.3 (2026), p. 108414. doi: 10.1016/j.jfranklin.2026.108414.

6. M. Alsalti, **I. Markovsky**, V. G. Lopez, and M. A. Müller. "Data-based system representations from irregularly measured data". In: *IEEE Trans. Automat. Contr.* 70 (2025), pp. 143–158. doi: 10.1109/TAC.2024.3423053.

7. A. Fazzi, **I. Markovsky**, and K. Usevich. "Implementation improvements and extensions of an ODE-based algorithm for structured low-rank approximation". In: *Calcolo* 62 (2025). doi: 10.1007/s10092-024-00623-y.

8. F. Kaviani, **I. Markovsky**, and H. Ossareh. "Uncertainty Quantification of Data-Driven Output Predictors in the Output Error Setting". In: *IEEE Trans. Automat. Contr.* 70 (2025), pp. 7588–7595. doi: 10.1109/TAC.2025.3573151.

9. **I. Markovsky**, J. Eising, and A. Padoan. "How to represent and identify affine time-invariant systems?" In: *Control Systems Letters* 9 (2025), pp. 1207–1212. doi: 10.1109/LCSYS.2025.3579393.

10. K. Usevich, J. Gillard, P. Dreesen, and **I. Markovsky**. "Structured nuclear norm matrix completion: Guaranteeing exact recovery via block-column scaling". In: *Numerical Linear Algebra with Applications* 32.4 (2025), e70031. doi: 10.1002/nla.70031.

11. C. Verhoek, **I. Markovsky**, S. Haesaert, and R. Toth. "The behavioral approach for LPV data-driven representations". In: *IEEE Trans. Automat. Contr.* (2025). doi: https://doi.org/10.1109/TAC.2025.3613909.

12. J. Yan, **I. Markovsky**, and J. Lygeros. "Secure Data Reconstruction: A Direct Data-Driven Approach". In: *IEEE Trans. Automat. Contr.* (2025). doi: 10.1109/TAC.2025.3585652.

13. A. Fazzi, A. Kukush, and **I. Markovsky**. "Bias correction for Vandermonde low-rank approximation". In: *Econometrics and Statistics* 31 (2024), pp. 38–48. doi: 10.1016/j.ecosta.2021.09.001.

14. **I. Markovsky**, M. Alsalti, V. G. Lopez, and M. A. Müller. "Identification from data with periodically missing output samples". In: *Automatica* 169 (2024), p. 111869. doi: 10.1016/j.automatica.2024.111869.

15. **I. Markovsky** and H. Ossareh. "Finite-data nonparametric frequency response evaluation without leakage". In: *Automatica* 159 (2024), p. 111351. doi: 10.1016/j.automatica.2023.111351.

16. J. Wang, L. Hemelhof, **I. Markovsky**, and P. Patrinos. "A trust-region method for data-driven iterative learning control of nonlinear systems". In: *Control Systems Letters* 8 (2024), pp. 1847–1852. doi: 10.1109/LCSYS.2024.3417805.

17. F. Dörfler, J. Coulson, and **I. Markovsky**. "Bridging direct & indirect data-driven control formulations via regularizations and relaxations". In: *IEEE Trans. Automat. Contr.* 68 (2 2023), pp. 883–897. doi: 10.1109/TAC.2022.3148374.

18. A. Fazzi and **I. Markovsky**. "Addition and intersection of linear time-invariant behaviors". In: *IFAC Journal of Systems and Control* 26 (2023), p. 100233. doi: 10.1016/j.ifacsc.2023.100233.

19. A. Fazzi and **I. Markovsky**. "Distance problems in the behavioral setting". In: *European Journal of Control* 74 (2023), p. 100832. doi: 10.1016/j.ejcon.2023.100832.

20. **I. Markovsky**. "Data-driven simulation of generalized bilinear systems via linear time-invariant embedding". In: *IEEE Trans. Automat. Contr.* 68 (2 2023), pp. 1101–1106. doi: 10.1109/TAC.2022.3146726.

21. **I. Markovsky** and F. Dörfler. "Identifiability in the behavioral setting". In: *IEEE Trans. Automat. Contr.* 68 (3 2023), pp. 1667–1677. doi: 10.1109/TAC.2022.3209954.

22. **I. Markovsky**, L. Huang, and F. Dörfler. "Data-driven control based on behavioral approach: From theory to applications in power systems". In: *IEEE Control Systems Magazine* 43 (5 2023), pp. 28–68. doi: 10.1109/MCS.2023.3291638.

23. **I. Markovsky**, E. Prieto-Araujo, and F. Dörfler. "On the persistency of excitation". In: *Automatica* (2023), p. 110657. doi: 10.1016/j.automatica.2022.110657.

24. A. Fazzi, B. Grossmann, G. Mercère, and **I. Markovsky**. "MIMO System Identification Using Common Denominator and Numerators with Known Degrees". In: *International Journal of Adaptive Control and Signal Processing* 36.4 (2022), pp. 870–881. doi: 10.1002/acs.3380.

25. **I. Markovsky** and F. Dörfler. "Data-driven dynamic interpolation and approximation". In: *Automatica* 135 (2022), p. 110008. doi: 10.1016/j.automatica.2021.110008.

26. A. Fazzi, N. Guglielmi, and **I. Markovsky**. "A gradient system approach for Hankel structured low-rank approximation". In: *Linear Algebra Appl.* 623 (2021), pp. 236–257. doi: 10.1016/j.laa.2020.11.016.

27. A. Fazzi, N. Guglielmi, and **I. Markovsky**. "Generalized algorithms for the approximate matrix polynomial GCD of reducing data uncertainties with application to MIMO system and control". In: *J. Comp. Appl. Math.* 393 (2021), p. 113499. doi: 10.1016/j.cam.2021.113499.

28. **I. Markovsky** and F. Dörfler. "Behavioral systems theory in data-driven analysis, signal processing, and control". In: *Annual Reviews in Control* 52 (2021), pp. 42–64. doi: 10.1016/j.arcontrol.2021.09.005.

29. V. Mishra and **I. Markovsky**. "The Set of Linear Time-Invariant Unfalsified Models with Bounded Complexity is Affine". In: *IEEE Trans. Automat. Contr.* 66 (9 2021), pp. 4432–4435. doi: 10.1109/TAC.2020.3046235.

30. G. Q. Carapia and **I. Markovsky**. "Input parameters estimation from time-varying measurements". In: *Measurement* 153 (2020), p. 107418. doi: 10.1016/j.measurement.2019.107418.

31. G. Q. Carapia, **I. Markovsky**, R. Pintelon, P. Csurcsia, and D. Verbeke. "Bias and covariance of the least squares estimate in a structured errors-in-variables problem". In: *Comput. Statist. Data Anal.* 144 (2020), p. 106893. doi: 10.1016/j.csda.2019.106893.

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33. T. Liu, **I. Markovsky**, T.-K. Pong, and A. Takeda. "A hybrid penalty method for a class of optimization problems with multiple rank constraints". In: *SIAM J. Matrix Anal. Appl.* 41 (3 2020), pp. 1260–1283. doi: 10.1137/19M1269919.

34. **I. Markovsky**, T. Liu, and A. Takeda. "Data-driven structured noise filtering via common dynamics estimation". In: *IEEE Trans. Signal Process.* 68 (1 2020), pp. 3064–3073. doi: 10.1109/TSP.2020.2993676.

35. V. Mishra, **I. Markovsky**, and B. Grossmann. "Data-Driven Tests for Controllability". In: *Control Systems Letters* 5 (2 2020), pp. 517–522. doi: 10.1109/LCSYS.2020.3003770.

36. **I. Markovsky**. "On the behavior of autonomous Wiener systems". In: *Automatica* 110 (2019), p. 108601. doi: 10.1016/j.automatica.2019.108601.

37. M. Zhang, **I. Markovsky**, C. Schretter, and J. D'hooge. "Compressed Ultrasound Signal Reconstruction using a Low-rank and Joint-sparse Representation Model". In: *Transactions on Ultrasonics, Ferroelectrics, and Frequency Control* 66 (7 2019), pp. 1232–1245. doi: `10.1109/TUFFC.2019.2915096`.

38. A. Fazzi, N. Guglielmi, and **I. Markovsky**. "An ODE based method for computing the Approximate Greatest Common Divisor of polynomials". In: *Numerical algorithms* 81 (2 2018), pp. 719–740. doi: `10.1007/s11075-018-0569-0`.

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40. **I. Markovsky**. "A missing data approach to data-driven filtering and control". In: *IEEE Trans. Automat. Contr.* 62 (4 2017), pp. 1972–1978. doi: `10.1109/TAC.2016.2591178`.

41. **I. Markovsky** and G. Mercère. "Subspace identification with constraints on the impulse response". In: *Int. J. Contr.* 90 (8 2017), pp. 1728–1735. doi: `10.1080/00207179.2016.1219922`.

42. K. Usevich and **I. Markovsky**. "Variable projection methods for approximate (greatest) common divisor computations". In: *Theoretical Computer Science* 681 (2017), pp. 176–198. doi: `10.1016/j.tcs.2017.03.028`.

43. **I. Markovsky**. "On the most powerful unfalsified model for data with missing values". In: *Systems & Control Lett.* 95 (2016), pp. 53–61. doi: `10.1016/j.sysconle.2015.12.012`.

44. K. Usevich and **I. Markovsky**. "Adjusted least squares fitting of algebraic hypersurfaces". In: *Linear Algebra Appl.* 502 (2016), pp. 243–274. doi: `10.1016/j.laa.2015.07.023`.

45. **I. Markovsky**. "An application of system identification in metrology". In: *Control Eng. Practice* 43 (2015), pp. 85–93. doi: `10.1016/j.conengprac.2015.07.001`.

46. **I. Markovsky**. "Comparison of adaptive and model-free methods for dynamic measurement". In: *IEEE Signal Proc. Lett.* 22.8 (2015), pp. 1094–1097. doi: `10.1109/LSP.2014.2388369`.

47. **I. Markovsky** and R. Pintelon. "Identification of linear time-invariant systems from multiple experiments". In: *IEEE Trans. Signal Process.* 63.13 (2015), pp. 3549–3554. doi: `10.1109/TSP.2015.2428218`.

48. M. Ishteva, K. Usevich, and **I. Markovsky**. "Factorization approach to structured low-rank approximation with applications". In: *SIAM J. Matrix Anal. Appl.* 35.3 (2014), pp. 1180–1204. doi: `10.1137/130931655`.

49. **I. Markovsky**. "Recent progress on variable projection methods for structured low-rank approximation". In: *Signal Processing* 96PB (2014), pp. 406–419. doi: `10.1016/j.sigpro.2013.09.021`.

50. **I. Markovsky**, J. Goos, K. Usevich, and R. Pintelon. "Realization and identification of autonomous linear periodically time-varying systems". In: *Automatica* 50 (2014), pp. 1632–1640. doi: `10.1016/j.automatica.2014.04.003`.

51. **I. Markovsky** and K. Usevich. "Software for weighted structured low-rank approximation". In: *J. Comp. Appl. Math.* 256 (2014), pp. 278–292. doi: `10.1016/j.cam.2013.07.048`.

52. S. Rhode, K. Usevich, **I. Markovsky**, and F. Gauterin. "A Recursive Restricted Total Least-squares Algorithm". In: *IEEE Trans. Signal Process.* 62.21 (2014), pp. 5652–5662. doi: `10.1109/TSP.2014.2350959`.

53. K. Usevich and **I. Markovsky**. "Optimization on a Grassmann manifold with application to system identification". In: *Automatica* 50 (2014), pp. 1656–1662. doi: `10.1016/j.automatica.2014.04.010`.

54. K. Usevich and **I. Markovsky**. "Variable projection for affinely structured low-rank approximation in weighted 2-norms". In: *J. Comp. Appl. Math.* 272 (2014), pp. 430–448. doi: `10.1016/j.cam.2013.04.034`.

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59. F. Le, **I. Markovsky**, C. Freeman, and E. Rogers. "Identification of electrically stimulated muscle models of stroke patients". In: *Control Eng. Practice* 18.4 (2010), pp. 396–407. doi: `10.1016/j.conengprac.2009.12.007`.

60. **I. Markovsky**. "Bibliography on total least squares and related methods". In: *Statistics and Its Interface* 3 (2010), pp. 329–334.

61. **I. Markovsky**. "Closed-loop data-driven simulation". In: *Int. J. Contr.* 83.10 (2010), pp. 2134–2139. doi: `10.1080/00207179.2010.508093`.

62. **I. Markovsky**, D. Sima, and S. Van Huffel. "Total least squares methods". In: *Wiley Interdisciplinary Reviews: Comput. Stat.* 2.2 (2010), pp. 212–217. doi: `10.1002/wics.65`.

63. **I. Markovsky** and S. Mahmoodi. "Least-squares contour alignment". In: *IEEE Signal Proc. Letters* 16.1 (2009), pp. 41–44. doi: `10.1109/LSP.2008.2008588`.

64. **I. Markovsky**. "Structured low-rank approximation and its applications". In: *Automatica* 44.4 (2008), pp. 891–909. doi: `10.1016/j.automatica.2007.09.011`.

65. **I. Markovsky** and M. Niranjan. "Approximate low-rank factorization with structured factors". In: *Comput. Statist. Data Anal.* 54 (2008), pp. 3411–3420. doi: `10.1016/j.csda.2009.06.003`.

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80. M. Schuermans, **I. Markovsky**, P. Wentzell, and S. Van Huffel. "On the equivalence between total least squares and maximum likelihood PCA". In: *Analytica Chimica Acta* 544.1–2 (2005), pp. 254–267. doi: `10.1016/j.aca.2004.12.059`.

81. J. C. Willems, P. Rapisarda, **I. Markovsky**, and B. De Moor. "A note on persistency of excitation". In: *Systems & Control Lett.* 54.4 (2005), pp. 325–329. doi: `10.1016/j.sysconle.2004.09.003`.

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D. Articles in conference proceedings (internationally peer reviewed)

1. **I. Markovsky**, J. Eising, and A. Padoan. "How to represent and identify affine time-invariant systems?" In: *Proc of the Conf. on Decision and Control*. 2025.

2. A. Sasfi, **I. Markovsky**, A. Padoan, and F. Dörfler. "Gaussian behaviors: Representations and data-driven control". In: *Proc of the Conf. on Decision and Control*. 2025.

3. **I. Markovsky**. "The Behavioral Toolbox". In: *Proc. of Machine Learning Research*. Vol. 242. 2024, pp. 130–141.

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