

Ivan Markovsky's Publications



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Overview

Number of publications per category:

A	scientific monographs	3
B	articles in books	11
C	articles in journals	87
D	articles in conference proceedings	55

Number of citations as of 30/12/2026:

8755 Google Scholar (GS) h-index 36

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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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).
2. **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](https://doi.org/10.1016/j.ymssp.2025.113802).
3. **I. Markovsky**, C. Verhoek, and R. Toth. "The most powerful unfalsified linear parameter-varying model". In: *Automatica* (2026). doi: [10.1016/j.automatica.2026.112855](https://doi.org/10.1016/j.automatica.2026.112855).
4. 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](https://doi.org/10.1109/TAC.2025.3636986).
5. 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](https://doi.org/10.1016/j.ifacsc.2025.100352).

6. 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](https://doi.org/10.1016/j.jfranklin.2026.108414).
7. M. Alsalti, **I. Markovsky**, V. G. Lopez, and M. A. Müller. "Data-based system representations from irregularly measured data". In: *IEEE Trans. Automat. Contr.* 70.1 (2025), pp. 143–158. doi: [10.1109/TAC.2024.3423053](https://doi.org/10.1109/TAC.2024.3423053).
8. 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](https://doi.org/10.1007/s10092-024-00623-y).
9. F. Kaviani, **I. Markovsky**, and H. Ossareh. "Uncertainty Quantification of Data-Driven Output Predictors in the Output Error Setting". In: *IEEE Trans. Automat. Contr.* 70.11 (2025), pp. 7588–7595. doi: [10.1109/TAC.2025.3573151](https://doi.org/10.1109/TAC.2025.3573151).
10. **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](https://doi.org/10.1109/LCSYS.2025.3579393).
11. 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](https://doi.org/10.1002/nla.70031).
12. 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>.
13. J. Yan, **I. Markovsky**, and J. Lygeros. "Secure Data Reconstruction: A Direct Data-Driven Approach". In: *IEEE Trans. Automat. Contr.* 70.12 (2025), pp. 8361–8367. doi: [10.1109/TAC.2025.3585652](https://doi.org/10.1109/TAC.2025.3585652).
14. 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](https://doi.org/10.1016/j.ecosta.2021.09.001).
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17. 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](https://doi.org/10.1109/LCSYS.2024.3417805).
18. 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](https://doi.org/10.1109/TAC.2022.3148374).
19. 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](https://doi.org/10.1016/j.ifacsc.2023.100233).
20. 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](https://doi.org/10.1016/j.ejcon.2023.100832).
21. **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](https://doi.org/10.1109/TAC.2022.3146726).

22. **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](https://doi.org/10.1109/TAC.2022.3209954).
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25. 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](https://doi.org/10.1002/acs.3380).
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31. 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](https://doi.org/10.1016/j.measurement.2019.107418).
32. 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](https://doi.org/10.1016/j.csda.2019.106893).
33. G. Q. Carapia, **I. Markovsky**, R. Pintelon, P. Csurcsia, and D. Verbeke. "Experimental validation of a data-driven step input estimation method for dynamic measurements". In: *IEEE Transactions on Instrumentation and Measurement* 69 (7 2020), pp. 4843–4851. doi: [10.1109/TIM.2019.2951865](https://doi.org/10.1109/TIM.2019.2951865).
34. 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](https://doi.org/10.1137/19M1269919).
35. **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](https://doi.org/10.1109/TSP.2020.2993676).
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37. **I. Markovsky**. "On the behavior of autonomous Wiener systems". In: *Automatica* 110 (2019), p. 108601. doi: [10.1016/j.automatica.2019.108601](https://doi.org/10.1016/j.automatica.2019.108601).

38. 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](https://doi.org/10.1109/TUFFC.2019.2915096).
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43. 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](https://doi.org/10.1016/j.tcs.2017.03.028).
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49. 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](https://doi.org/10.1137/130931655).
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51. **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](https://doi.org/10.1016/j.automatica.2014.04.003).
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