Ivan Markovsky's Publications

Catalan Institution for Research and Advanced Studies (ICREA)
International Centre for Numerical Methods in Engineering (CIMNE)
post address: Gran Capitàn, 08034 Barcelona, Spain
webpage: https://imarkovs.github.io
email: imarkovsky@cimne.upc.edu

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 December 22, 2025:

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* (2026).

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* (2026).

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.

32. 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.

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.

39. N. Guglielmi and **I. Markovsky**. "An ODE based method for computing the distance of co-prime polynomials to common divisibility". In: *SIAM Journal on Numerical Analysis* 55 (3 2017), pp. 1456–1482. doi: 10.1137/15M1018265.

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.

55. **I. Markovsky**. “A software package for system identification in the behavioral setting”. In: *Control Eng. Practice* 21 (2013), pp. 1422–1436. doi: 10.1016/j.conengprac.2013.06.010.

56. **I. Markovsky** and K. Usevich. “Structured low-rank approximation with missing data”. In: *SIAM J. Matrix Anal. Appl.* 34.2 (2013), pp. 814–830. doi: 10.1137/120883050.

57. F. Le, **I. Markovsky**, C. Freeman, and E. Rogers. “Recursive identification of Hammerstein systems with application to electrically stimulated muscle”. In: *Control Eng. Practice* 20.4 (2012), pp. 386–396. doi: 10.1016/j.conengprac.2011.08.001.

58. **I. Markovsky**. “On the complex least squares problem with constrained phase”. In: *SIAM J. Matrix Anal. Appl.* 32.3 (2011), pp. 987–992. doi: 10.1137/110826497.

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.

66. **I. Markovsky** and P. Rapisarda. “Data-driven simulation and control”. In: *Int. J. Contr.* 81.12 (2008), pp. 1946–1959. doi: 10.1080/00207170801942170.

67. A. Kukush, **I. Markovsky**, and S. Van Huffel. “Estimation in a linear multivariate measurement error model with a change point in the data”. In: *Comput. Statist. Data Anal.* 52.2 (2007), pp. 1167–1182. doi: 10.1016/j.csda.2007.06.010.

68. **I. Markovsky** and S. Van Huffel. “Left vs right representations for solving weighted low rank approximation problems”. In: *Linear Algebra Appl.* 422 (2007), pp. 540–552. doi: 10.1016/j.laa.2006.11.012.

69. **I. Markovsky** and S. Van Huffel. “Overview of total least squares methods”. In: *Signal Processing* 87 (2007), pp. 2283–2302. doi: 10.1016/j.sigpro.2007.04.004.

70. M. Schuermans, **I. Markovsky**, and S. Van Huffel. “An adapted version of the element-wise weighted TLS method for applications in chemometrics”. In: *Chemometrics and Intelligent Laboratory Systems* 85.1 (2007), pp. 40–46. doi: 10.1016/j.chemolab.2006.04.003.

71. S. Shklyar, A. Kukush, **I. Markovsky**, and S. Van Huffel. “On the conic section fitting problem”. In: *Journal of Multivariate Analysis* 98 (2007), pp. 588–624. doi: 10.1016/j.jmva.2005.12.003.

72. S. Van Huffel, **I. Markovsky**, R. J. Vaccaro, and T. Söderström. “Guest editorial: Total least squares and errors-in-variables modeling”. In: *Signal Processing* 87.10 (Oct. 2007), pp. 2281–2282.

73. A. Kukush, **I. Markovsky**, and S. Van Huffel. “Consistency of the structured total least squares estimator in a multivariate errors-in-variables model”. In: *J. Statist. Plann. Inference* 133.2 (2005), pp. 315–358. doi: 10.1016/j.jspi.2003.12.020.

74. **I. Markovsky** and B. De Moor. “Linear dynamic filtering with noisy input and output”. In: *Automatica* 41.1 (2005), pp. 167–171. doi: 10.1016/j.automatica.2004.08.014.

75. **I. Markovsky**, M. Rastello, A. Premoli, A. Kukush, and S. Van Huffel. “The element-wise weighted total least squares problem”. In: *Comput. Statist. Data Anal.* 50.1 (2005), pp. 181–209. doi: 10.1016/j.csda.2004.07.014.

76. **I. Markovsky** and S. Van Huffel. “High-performance numerical algorithms and software for structured total least squares”. In: *J. Comp. Appl. Math.* 180.2 (2005), pp. 311–331. doi: 10.1016/j.cam.2004.11.003.

77. **I. Markovsky**, S. Van Huffel, and R. Pintelon. “Block-Toeplitz/Hankel structured total least squares”. In: *SIAM J. Matrix Anal. Appl.* 26.4 (2005), pp. 1083–1099. doi: 10.1137/S0895479803434902.

78. **I. Markovsky**, J. C. Willems, P. Rapisarda, and B. De Moor. “Algorithms for deterministic balanced subspace identification”. In: *Automatica* 41.5 (2005), pp. 755–766. doi: 10.1016/j.automatica.2004.10.007.

79. **I. Markovsky**, J. C. Willems, S. Van Huffel, B. De Moor, and R. Pintelon. “Application of structured total least squares for system identification and model reduction”. In: *IEEE Trans. Automat. Contr.* 50.10 (2005), pp. 1490–1500. doi: 10.1109/TAC.2005.856643.

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.

82. A. Kukush, **I. Markovsky**, and S. Van Huffel. “Consistent estimation in an implicit quadratic measurement error model”. In: *Comput. Statist. Data Anal.* 47.1 (2004), pp. 123–147. doi: 10.1016/j.csda.2003.10.022.

83. **I. Markovsky**, A. Kukush, and S. Van Huffel. “Consistent least squares fitting of ellipsoids”. In: *Numerische Mathematik* 98.1 (2004), pp. 177–194. doi: 10.1007/s00211-004-0526-9.

84. **I. Markovsky**, S. Van Huffel, and A. Kukush. “On the computation of the structured total least squares estimator”. In: *Numer. Linear. Algebra Appl.* 11 (2004), pp. 591–608. doi: 10.1002/nla.361.

85. A. Kukush, **I. Markovsky**, and S. Van Huffel. “Consistent estimation in the bilinear multivariate errors-in-variables model”. In: *Metrika* 57.3 (2003), pp. 253–285. doi: 10.1007/s001840200217.

86. A. Kukush, **I. Markovsky**, and S. Van Huffel. “Consistent fundamental matrix estimation in a quadratic measurement error model arising in motion analysis”. In: *Comput. Statist. Data Anal.* 41.1 (2002), pp. 3–18. doi: 10.1016/S0167-9473(02)00068-3.

87. M. Lemmon, K. He, and **I. Markovsky**. “Supervisory Hybrid Systems”. In: *IEEE Control Systems Magazine* 19.4 (Aug. 1999), pp. 42–55. doi: 10.1109/37.777788.

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.

4. J. Wang, L. Hemelhof, **I. Markovsky**, and P. Patrinos. “A trust-region method for data-driven iterative learning control of nonlinear systems”. In: *Proc of the Conf. on Decision and Control*. 2024.

5. L. Hemelhof, **I. Markovsky**, and P. Patrinos. “Data-Driven Output Matching of Output-Generalized Bilinear and Linear Parameter-Varying systems”. In: *Proc of the European Control Conf.* 2023, pp. 1525–1530. doi: 10.23919/ECC57647.2023.10178404.

6. A. Fazzi, N. Guglielmi, **I. Markovsky**, and K. Usevich. “Common dynamic estimation via structured low-rank approximation with multiple rank constraints”. In: *Proc of the 19th IFAC Symp. on System Identification*. Vol. 54. 2021, pp. 103–107. doi: 10.1016/j.ifacol.2021.08.342.

7. **I. Markovsky**. “System theory without transfer functions and state-space? Yes, it’s possible!” In: *Proc of the 60th IEEE Conf. on Decision and Control*. 2021. doi: 10.1109/CDC45484.2021.9682958.

8. V. Mishra, **I. Markovsky**, A. Fazzi, and P. Dreesen. “Data-Driven Simulation for NARX Systems”. In: *Proc. of the European Association for Signal Processing*. 2021. doi: 10.23919/EUSIPCO54536.2021.9616226.

9. V. Mishra, **I. Markovsky**, and B. Grossmann. “Data-Driven Tests for Controllability”. In: *Proc of the 59th IEEE Conf. on Decision and Control*. 2020.

10. D. Verbeke and **I. Markovsky**. “Line spectral estimation with palyndromic kernels”. In: *Proc. of the Int. Conf. on Acoustics, Speech, and Signal Processing*. Barcelona, 2020, pp. 5960–5963. doi: 10.1109/ICASSP40776.2020.9053514.

11. P. Dreesen and **I. Markovsky**. “Data-Driven Simulation Using The Nuclear Norm Heuristic”. In: *Proc. of the Int. Conf. on Acoustics, Speech, and Signal Processing*. Brighton, UK, 2019. doi: 10.1109/icassp.2019.8682993.

12. A. Fazzi, N. Guglielmi, and **I. Markovsky**. “Computing common factors of matrix polynomials with applications in system and control theory”. In: *Proc. of the IEEE Conf. on Decision and Control*. Nice, France, Dec. 2019, pp. 7721–7726. doi: 978-1-7281-1397-5/19/.

13. **I. Markovsky**, T. Liu, and A. Takeda. “Subspace methods for multi-channel sum-of-exponentials common dynamics estimation”. In: *Proc. of the IEEE Conf. on Decision and Control*. 2019, pp. 2672–2675. doi: 978-1-7281-1397-5/19.

14. K. Usevich and **I. Markovsky**. “Software package for mosaic-Hankel structured low-rank approximation”. In: *Proc. of the IEEE Conf. on Decision and Control*. Nice, France, Dec. 2019, pp. 7165–7170. doi: 978-1-7281-1397-5/19/.

15. S. Formentin and **I. Markovsky**. “A comparison between structured low-rank approximation and correlation approach for data-driven output tracking”. In: *Proc. of the IFAC Symp. on System Identification*. 2018, pp. 1068–1073. doi: 10.1016/j.ifacol.2018.09.052.

16. M. Zhang, **I. Markovsky**, C. Schretter, and J. D’hooge. “Ultrasound signal reconstruction from sparse samples using a low-rank and joint-sparse model”. In: *Proc. of iTWIST’18, Paper-ID: 21*. Marseille, France, 2018. doi: 10.1109/ultsym.2018.8579777.

17. **I. Markovsky**. “Application of low-rank approximation for nonlinear system identification”. In: *Proc of the 25th IEEE Mediterranean Conf. on Control and Automation*. Valletta, Malta, July 2017, pp. 12–16. doi: 10.1109/med.2017.7984088.

18. **I. Markovsky**, O. Debals, and L. De Lathauwer. “Sum-of-Exponentials Modeling and Common Dynamics Estimation Using Tensorlab”. In: *Proc of the 20th World Congress of the Int. Federation of Automatic Control*. Toulouse, France, July 2017, pp. 14715–14720. doi: 10.1016/j.ifacol.2017.08.2077.

19. **I. Markovsky** and N. Guglielmi. “Model order estimation based on a method for computing distance to uncontrollability”. In: *Proc. of the Conf. on Noise and Vibration Engineering*. Leuven, Belgium, Sept. 2016, pp. 2963–2970.

20. G. Mercèr, **I. Markovsky**, and J. Ramos. “Innovation-based subspace identification in open- and closed-loop”. In: *Proc. of the 55th IEEE Conf. on Decision and Control*. Las Vegas, USA, Dec. 2016. doi: 10.1109/CDC.2016.7798709.

21. M. Ishteva and **I. Markovsky**. “Tensor low multilinear rank approximation by structured matrix low-rank approximation”. In: *Proc. of 21st Int. Symp. on Mathematical Theory of Networks and Systems*. Groningen, The Netherlands, July 2014, pp. 1808–1812.

22. **I. Markovsky** and R. Pintelon. “Consistent estimation of autonomous linear time-invariant systems from multiple experiments”. In: *Proc. of the Conf. on Noise and Vibration Engineering*. Leuven, Belgium, Sept. 2014, pp. 3265–3268.

23. **I. Markovsky**. “Approximate identification with missing data”. In: *Proc. of the 52nd IEEE Conf. on Decision and Control*. Florence, Italy, Dec. 2013, pp. 156–161. doi: 10.1109/CDC.2013.6759875.

24. **I. Markovsky**. “Exact identification with missing data”. In: *Proc. of the 52nd IEEE Conf. on Decision and Control*. Florence, Italy, 2013, pp. 151–155. doi: 10.1109/CDC.2013.6759874.

25. **I. Markovsky**. “Dynamical systems and control mindstorms”. In: *Proc. of the 20th Mediterranean Conf. on Control and Automation*. Barcelona, 2012, pp. 54–59. doi: 10.1109/MED.2012.6265614.

26. **I. Markovsky**. “How effective is the nuclear norm heuristic in solving data approximation problems?” In: *Proc. of the 16th IFAC Symp. on System Identification*. Brussels, 2012, pp. 316–321. doi: 10.3182/20120711-3-BE-2027.00125.

27. K. Usevich and **I. Markovsky**. “Structured low-rank approximation as a rational function minimization”. In: *Proc. of the 16th IFAC Symp. on System Identification*. Brussels, 2012, pp. 722–727. doi: 10.3182/20120711-3-BE-2027.00143.

28. F. Le, **I. Markovsky**, C. Freeman, and E. Rogers. “Online identification of electrically stimulated muscle models”. In: *Proc. of the American Control Conf.* San Francisco, USA, June 2011, pp. 90–95. doi: 10.1109/ACC.2011.5991136.

29. F. Le, **I. Markovsky**, C. Freeman, and E. Rogers. “Recursive Identification of Hammerstein Structure”. In: *Proc. of the 18th IFAC World Congress*. Vol. 44. Milano, Italy, Aug. 2011, pp. 13954–13959. doi: 10.3182/20110828-6-it-1002.00313.

30. F. Le, **I. Markovsky**, C. Freeman, and E. Rogers. “Identification of Electrically Stimulated Muscle after Stroke”. In: *Proc. of the European Control Conf.* Budapest, Hungary, Aug. 2009, pp. 1576–1581. doi: 10.23919/ECC.2009.7074631.

31. **I. Markovsky**. “An algorithm for closed-loop data-driven simulation”. In: *Proc of the 15th IFAC Symp. on System Identification*. Saint-Malo, France, July 2009, pp. 114–115. doi: 10.3182/20090706-3-fr-2004.00018.

32. **I. Markovsky**. “Applications of structured low-rank approximation”. In: *Proc of the 15th IFAC Symp. on System Identification*. Saint-Malo, France, July 2009, pp. 1121–1126. doi: 10.3182/20090706-3-FR-2004.00186.

33. M. Przedwojski, **I. Markovsky**, and E. Rogers. “Identifiability of clock synchronization errors: a behavioural approach”. In: *Proc of the 48th IEEE Conf. on Decision and Control*. Shanghai, China, 2009, pp. 8095–8100. doi: 10.1109/cdc.2009.5399867.

34. **I. Markovsky**, A. Amann, and S. Van Huffel. “Application of Filtering Methods for Removal of Resuscitation Artifacts from Human ECG Signals”. In: *Proc. of the 30th Conf. of IEEE Eng. in Medicine and Biology Soc.* Vancouver, Canada, Aug. 2008, pp. 13–16. doi: 10.1109/IEMBS.2008.4649079.

35. **I. Markovsky** and S. Rao. “Palindromic polynomials, time-reversible systems, and conserved quantities”. In: *Proc of the 16th Mediterranean Conf. on Control and Automation*. Ajaccio, France, June 2008, pp. 125–130. doi: 10.1109/MED.2008.4602018.

36. P. Rapisarda and **I. Markovsky**. “Why "state" feedback?” In: *Proc. of the 17th IFAC World Congress*. Seoul, Korea, July 2008, pp. 12285–12290. doi: 10.3182/20080706-5-KR-1001.3661.

37. **I. Markovsky** and P. Rapisarda. “On the linear quadratic data-driven control”. In: *Proc. of the European Control Conf.* Kos, Greece, July 2007, pp. 5313–5318. doi: 10.23919/ecc.2007.7068299.

38. **I. Markovsky**, J. Boets, B. Vanluyten, K. De Cock, and B. De Moor. “When is a pole spurious?” In: *Proc. of the Int. Conf. on Noise and Vibration Engineering*. Leuven, Belgium, 2006, pp. 1615–1626.

39. **I. Markovsky**, A. Kukush, and S. Van Huffel. “On errors-in-variables estimation with unknown noise variance ratio”. In: *Proc. of the 14th IFAC Symp. on System Identification*. Newcastle, Australia, 2006, pp. 172–177. doi: 10.3182/20060329-3-au-2901.00021.

40. **I. Markovsky** and S. Van Huffel. “An algorithm for approximate common divisor computation”. In: *Proc. of the 17th Symp. on Math. Theory of Networks and Systems*. Kyoto, Japan, 2006, pp. 274–279.

41. **I. Markovsky**, J. C. Willems, and B. De Moor. “Comparison of identification algorithms on the database for system identification DAISY”. In: *Proc. of the 17th Symp. on Math. Theory of Networks and Systems*. Kyoto, Japan, 2006, pp. 2858–2869.

42. **I. Markovsky**, J. C. Willems, and B. De Moor. “Recursive computation of the most powerful unfalsified model”. In: *Proc. of the 14th IFAC Symp. on System Identification*. Newcastle, Australia, 2006, pp. 588–593. doi: 10.3182/20060329-3-AU-2901.00090.

43. **I. Markovsky**, J. C. Willems, and B. De Moor. “Software for exact linear system identification”. In: *Proc. of the 17th Symp. on Math. Theory of Networks and Systems*. Kyoto, Japan, 2006, pp. 1475–1483. doi: 10.1109/cdc.2005.1582380.

44. **I. Markovsky**, J. C. Willems, and B. De Moor. “The module structure of ARMAX systems”. In: *Proc. of the 41st Conf. on Decision and Control*. San Diego, USA, 2006, pp. 811–816. doi: 10.1109/CDC.2006.377656.

45. J. C. Willems, **I. Markovsky**, and B. De Moor. “State construction in subspace identification”. In: *Proc. of the 14th IFAC Symp. on System Identification*. Newcastle, Australia, 2006, pp. 303–308. doi: 10.3182/20060329-3-au-2901.00043.

46. **I. Markovsky**, J. C. Willems, and B. De Moor. “State representations from finite time series”. In: *Proc. of the 44th Conf. on Decision and Control*. Seville, Spain, 2005, pp. 832–835. doi: 10.1109/CDC.2005.1582260.

47. **I. Markovsky**, J. C. Willems, P. Rapisarda, and B. De Moor. “Data driven simulation with applications to system identification”. In: *Proc. of the 16th IFAC World Congress*. Prague, Czech Republic, 2005. doi: 10.3182/20050703-6-cz-1902.00163.

48. **I. Markovsky**, J. C. Willems, S. Van Huffel, and B. De Moor. “Software for approximate linear system identification”. In: *Proc. of the 44th Conf. on Decision and Control*. Seville, Spain, 2005, pp. 1559–1564. doi: 10.1109/CDC.2005.1582380.

49. **I. Markovsky**, S. Van Huffel, and B. De Moor. “$\mathcal{H}_2$-optimal linear parametric design”. In: *Proc. of the 16th Int. Symp. on Math. Theory of Networks and Systems*. 2004.

50. **I. Markovsky**, J. C. Willems, S. Van Huffel, B. De Moor, and R. Pintelon. “Application of structured total least squares for system identification”. In: *Proc. of the 43rd Conf. on Decision and Control*. Atlantis, Paradise Island, Bahamas, 2004, pp. 3382–3387. doi: 10.1109/cdc.2004.1429229.

51. J. C. Willems, **I. Markovsky**, P. Rapisarda, and B. De Moor. “A note on persistency of excitation”. In: *Proc. of the 43rd Conf. on Decision and Control*. Atlantis, Paradise Island, Bahamas, 2004, pp. 2630–2631. doi: 10.1109/cdc.2004.1428856.

52. **I. Markovsky** and B. De Moor. “Linear dynamic filtering with noisy input and output”. In: *Proc. of the 13th IFAC Symp. on System Identification*. Rotterdam, The Netherlands, 2003, pp. 1749–1754. doi: 10.1016/s1474-6670(17)35007-3.

53. **I. Markovsky**, S. Van Huffel, and B. De Moor. “Multi-model system parameter estimation”. In: *Proc. of the IEEE Int. Conf. on Systems, Man, and Cybernetics*. 2002. doi: 10.1109/icsmc.2002.1176410.

54. **I. Markovsky**, J. C. Willems, and B. De Moor. “Continuous-time errors-in-variables filtering”. In: *Proc. of the 41st Conf. on Decision and Control*. Las Vegas, NV, 2002, pp. 2576–2581. doi: 10.1109/CDC.2002.1184226.

55. N. Madjarov, L. Mihailova, and **I. Markovsky**. “An Algorithm for Parallel Adaptive Control of Stochastic Systems”. In: *Proc. of the Bulgarian National Conf. on Informatics and Automatics*. 1997, pp. 5–8.