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	57
I1	articles in conference proceedings	48

Number of citations as of 28 August 2020:

1682	Web of Science (WoS)	h-index 18
4152	Google Scholar (GS)	h-index 28

Pdf files and computer code, implementing the methods and allowing reproducibility of the results, are available from: http://homepages.vub.ac.be/~imarkovs/publications.html

A. Scientific monographs

1. I. Markovsky. *Low-Rank Approximation: Algorithms, Implementation, Applications*. Second edition. Springer, 2019.

2. I. Markovsky. *Low Rank Approximation: Algorithms, Implementation, Applications*. First edition. Springer, 2012.

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.

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. isbn: 978-1-78561-712-6.

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. isbn: 978-3-319-22481-7.

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. isbn: 9781482241396.

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.

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.

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.

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.

10. A. Kukush, I. Markovsky, and S. Van Huffel. “Consistent estimation of an ellipsoid with known center”. In: *Comput. Stat. (COMPSTAT)*. Ed. by J. Antoch. Physica–Verlag, 2004, pp. 1369–1376. isbn: 3-7908-1554-3.

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.

C. Articles in journals (internationally peer reviewed)

1. G. Quintana Carapia and I. Markovsky. “Input parameters estimation from time-varying measurements”. In: *Measurement* 153 (2020). doi: https://doi.org/10.1016/j.measurement.2019.107418.

2. G. Quintana Carapia, I. Markovsky, R. Pintelon, P. Zoltan 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). doi: 10.1016/j.csda.2019.106893.

3. G. Quintana Carapia, I. Markovsky, R. Pintelon, P. Zoltan 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.

4. 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.* (2020).

5. 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.

6. 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.

7. I. Markovsky. “On the behavior of autonomous Wiener systems”. In: *Automatica* 110 (2019), p. 108601. doi: https://doi.org/10.1016/j.automatica.2019.108601.

8. 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.

9. 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.

10. 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.

11. I. Markovsky. “A missing data approach to data-driven filtering and control”. In: *IEEE Trans. Automat. Contr.* 62 (Apr. 2017), pp. 1972–1978. issn: 1558–2523.

12. I. Markovsky and G. Mercère. “Subspace identification with constraints on the impulse response”. In: *Int. J. Contr.* 90 (8 2017), pp. 1728–1735.

13. K. Usevich and I. Markovsky. “Variable projection methods for approximate (greatest) common divisor computations”. In: *Theoretical Computer Science* 681 (2017), pp. 176–198.

14. I. Markovsky. “On the most powerful unfalsified model for data with missing values”. In: *Systems & Control Lett.* 95 (2016), pp. 53–61.

15. K. Usevich and I. Markovsky. “Adjusted least squares fitting of algebraic hypersurfaces”. In: *Linear Algebra Appl.* 502 (2016), pp. 243–274.

16. I. Markovsky. “An application of system identification in metrology”. In: *Control Eng. Practice* 43 (2015), pp. 85–93.

17. I. Markovsky. “Comparison of adaptive and model-free methods for dynamic measurement”. In: *IEEE Signal Proc. Lett.* 22.8 (2015), pp. 1094–1097.

18. 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.

19. 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.

20. I. Markovsky. “Recent progress on variable projection methods for structured low-rank approximation”. In: *Signal Processing* 96PB (2014), pp. 406–419.

21. 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.

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26. I. Markovsky. “A software package for system identification in the behavioral setting”. In: *Control Eng. Practice* 21.10 (2013), pp. 1422–1436.

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28. 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.

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

30. 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.

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

32. I. Markovsky. “Closed-loop data-driven simulation”. In: *Int. J. Contr.* 83.10 (2010), pp. 2134–2139.

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38. 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.

39. 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.

40. I. Markovsky and S. Van Huffel. “Overview of total least squares methods”. In: *Signal Processing* 87 (2007), pp. 2283–2302.

41. 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.

42. 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.

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44. 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.

45. I. Markovsky and B. De Moor. “Linear dynamic filtering with noisy input and output”. In: *Automatica* 41.1 (2005), pp. 167–171.

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52. 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.

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56. 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.

57. 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.

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

I1. Articles in conference proceedings (internationally peer reviewed)

1. I. Markovsky. “Learning Kalman filtering with Lego mindstorms”. In: *International Symposium on Mathematical Theory of Networks and Systems*. 2021.

2. V. Mishra and I. Markovsky. “Unfalsified Linear Time-Invariant Behaviors of Bounded Complexity”. In: *International Symposium on Mathematical Theory of Networks and Systems*. 2021.

3. V. Mishra, I. Markovsky, and B. Grossmann. “Data-Driven Tests for Controllability”. In: *59th IEEE Conference on Decision and Control*. 2020.

4. D. Verbeke and I. Markovsky. “Line spectral estimation with palyndromic kernels”. In: *In Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*. Barcelona, 2020, pp. 5960–5963.

5. P. Dreesen and I. Markovsky. “Data-Driven Simulation Using The Nuclear Norm Heuristic”. In: *In Proceedings of the International Conference on Acoustics, Speech, and Signal Processing*. Brighton, UK, 2019.

6. 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/.

7. 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.

8. 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/.

9. 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 Symposium on System Identification*. 2018, pp. 1068–1073.

10. 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: *In Proceedings of iTWIST’18, Paper-ID: 21*. Marseille, France, 2018.

11. I. Markovsky. “Application of low-rank approximation for nonlinear system identification”. In: *25th IEEE Mediterranean Conference on Control and Automation*. Valletta, Malta, July 2017, pp. 12–16. isbn: 978-1-5090-4532-7/17.

12. I. Markovsky, O. Debals, and L. De Lathauwer. “Sum-of-Exponentials Modeling and Common Dynamics Estimation Using Tensorlab”. In: *20th World Congress of the International Federation of Automatic Control*. Toulouse, France, July 2017, pp. 14715–14720.

13. I. Markovsky and N. Guglielmi. “Model order estimation based on a method for computing distance to uncontrollability”. In: *Proc. of the Conference on Noise and Vibration Engineering (ISMA)*. Leuven, Belgium, Sept. 2016, pp. 2963–2970. isbn: 9789073802940.

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

15. M. Ishteva and I. Markovsky. “Tensor low multilinear rank approximation by structured matrix low-rank approximation”. In: *Proc. of the 21st International Symposium on Mathematical Theory of Networks and Systems*. Groningen, The Netherlands, July 2014, pp. 1808–1812. isbn: 978-90-367-6321-9.

16. I. Markovsky and R. Pintelon. “Consistent estimation of autonomous linear time-invariant systems from multiple experiments”. In: *Proc. of the Conference on Noise and Vibration Engineering (ISMA)*. Leuven, Belgium, Sept. 2014, pp. 3265–3268. isbn: 9789073802919.

17. I. Markovsky. “Approximate identification with missing data”. In: *Proc. of the 52nd IEEE Conference on Decision and Control*. Florence, Italy, Dec. 2013, pp. 156–161.

18. I. Markovsky. “Exact identification with missing data”. In: *Proc. of the 52nd IEEE Conference on Decision and Control*. Florence, Italy, 2013, pp. 151–155.

19. I. Markovsky. “Dynamical systems and control mindstorms”. In: *Proc. 20th Mediterranean Conf. on Control and Automation*. Barcelona, Spain, 2012, pp. 54–59.

20. I. Markovsky. “How effective is the nuclear norm heuristic in solving data approximation problems?” In: *Proc. of the 16th IFAC Symposium on System Identification*. Brussels, 2012, pp. 316–321. isbn: 978-3-902823-06-9.

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26. I. Markovsky. “Applications of structured low-rank approximation”. In: *15th IFAC Symposium on System Identification*. Saint-Malo, France, July 2009, pp. 1121–1126.

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