

Guy Revach - List of Publications ¹

Journal Papers

- [1] G. Revach, N. Shlezinger, X. Ni, A. L. Escoriza, R. J. G. van Sloun, and Y. C. Eldar, “KalmanNet: Neural Network Aided Kalman Filtering for Partially Known Dynamics,” *IEEE Transactions on Signal Processing*, vol. 70, pp. 1532–1547, 2022. [Online]. Available: <https://doi.org/10.1109/TSP.2022.3158588>
- [2] T. Gafni, B. Wolff, G. Revach, N. Shlezinger, and K. Cohen, “Anomaly Search Over Discrete Composite Hypotheses in Hierarchical Statistical Models,” *IEEE Transactions on Signal Processing*, vol. 71, pp. 202–217, 2023. [Online]. Available: <https://doi.org/10.1109/TSP.2023.3242074>
- [3] J. P. Merkofer, G. Revach, N. Shlezinger, T. Routtenberg, and R. J. G. van Sloun, “DA-MUSIC: Data-Driven DoA Estimation via Deep Augmented MUSIC Algorithm,” *IEEE Transactions on Vehicular Technology*, pp. 1–14, 2023. [Online]. Available: <https://doi.org/10.1109/TVT.2023.3320360>
- [4] G. Revach, X. Ni, N. Shlezinger, R. J. G. van Sloun, and Y. C. Eldar, “RTSNet: Learning to Smooth in Partially Known State-Space Models,” *CoRR*, vol. abs/2110.04717, 2023, Accepted to IEEE Transactions on Signal Processing. [Online]. Available: <https://arxiv.org/abs/2110.04717>
- [5] I. Buchnik, G. Revach, D. Steger, R. J. G. van Sloun, T. Routtenberg, and N. Shlezinger, “Latent-KalmanNet: Learned Kalman Filtering for Tracking from High-Dimensional Signals,” *CoRR*, vol. abs/2304.07827, 2023, Accepted to IEEE Transactions on Signal Processing. [Online]. Available: <https://arxiv.org/abs/2304.07827>

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²The paper [1] has been cited more than 110 times and has been identified as one of the top 25 downloaded articles of the IEEE Signal Processing Society for the period from September 2022 to September 2023 in the IEEE Transactions on Signal Processing, as listed on IEEE Xplore®!

Conference Papers

- [6] G. Revach, N. Shlezinger, R. J. G. van Sloun, and Y. C. Eldar, “KalmanNet: Data-Driven Kalman Filtering,” in *IEEE International Conference on Acoustics, Speech and Signal Processing, ICASSP 2021, Toronto, ON, Canada, June 6-11, 2021*. IEEE, 2021, pp. 3905–3909. [Online]. Available: <https://doi.org/10.1109/ICASSP39728.2021.9413750>
- [7] A. L. Escoriza, G. Revach, N. Shlezinger, and R. J. G. van Sloun, “Data-Driven Kalman-Based Velocity Estimation for Autonomous Racing,” in *2021 IEEE International Conference on Autonomous Systems (ICAS)*, 2021, pp. 1–5. [Online]. Available: <https://doi.org/10.1109/ICAS49788.2021.9551175>
- [8] X. Ni, G. Revach, N. Shlezinger, R. J. G. van Sloun, and Y. C. Eldar, “RTSNet: Deep Learning Aided Kalman Smoothing,” in *IEEE International Conference on Acoustics, Speech and Signal Processing, ICASSP 2022, Singapore, 23-27 May 2022*. IEEE, 2022, pp. 5902–5906. [Online]. Available: <https://doi.org/10.1109/ICASSP43922.2022.9746487>
- [9] I. Klein, G. Revach, N. Shlezinger, J. E. Mehr, R. J. G. van Sloun, and Y. C. Eldar, “Uncertainty in Data-Driven Kalman Filtering for Partially Known State-Space Models,” in *IEEE International Conference on Acoustics, Speech and Signal Processing, ICASSP 2022, Singapore, 23-27 May 2022*. IEEE, 2022, pp. 3194–3198. [Online]. Available: <https://doi.org/10.1109/ICASSP43922.2022.9746732>
- [10] J. P. Merkofer, G. Revach, N. Shlezinger, and R. J. G. van Sloun, “Deep Augmented MUSIC Algorithm for Data-Driven DoA Estimation,” in *IEEE International Conference on Acoustics, Speech and Signal Processing, ICASSP 2022, Singapore, 23-27 May 2022*. IEEE, 2022, pp. 3598–3602. [Online]. Available: <https://doi.org/10.1109/ICASSP43922.2022.9746637>
- [11] B. Wolff, T. Gafni, G. Revach, N. Shlezinger, and K. Cohen, “Composite Anomaly Detection via Hierarchical Dynamic Search,” in *IEEE International Symposium on Information Theory, ISIT 2022, Espoo, Finland, June 26 - July 1, 2022*. IEEE, 2022, pp. 2421–2426. [Online]. Available: <https://doi.org/10.1109/ISIT50566.2022.9834631>
- [12] G. Revach, N. Shlezinger, T. Locher, X. Ni, R. J. G. van Sloun, and Y. C. Eldar, “Unsupervised Learned Kalman Filtering,” in *30th European Signal Processing Conference, EUSIPCO 2022, Belgrade, Serbia, August 29 - Sept. 2, 2022*. IEEE, 2022, pp. 1571–1575. [Online]. Available: <https://ieeexplore.ieee.org/document/9909801>
- [13] S. Truzman, G. Revach, N. Shlezinger, and I. Klein, “Outlier-Insensitive Kalman Filtering Using NUV Priors,” in *ICASSP 2023 - 2023 IEEE International Conference on Acoustics, Speech and*

- Signal Processing (ICASSP)*, 2023, pp. 1–5. [Online]. Available: <https://doi.org/10.1109/ICASSP49357.2023.10095261>
- [14] H. Deng, G. Revach, H. Morgenstern, and N. Shlezinger, “KalmanBOT: KalmanNet-Aided Bollinger Bands for Pairs Trading,” in *ICASSP 2023 - 2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2023, pp. 1–5. [Online]. Available: <https://doi.org/10.1109/ICASSP49357.2023.10094933>
- [15] S. G. Casspi, O. Hüsser, G. Revach, and N. Shlezinger, “LQGNet: Hybrid Model-Based and Data-Driven Linear Quadratic Stochastic Control,” in *ICASSP 2023 - 2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2023, pp. 1–5. [Online]. Available: <https://doi.org/10.1109/ICASSP49357.2023.10095181>
- [16] T. Locher, G. Revach, N. Shlezinger, R. J. G. van Sloun, and R. Vullings, “Hierarchical Filtering with Online Learned Priors for ECG Denoising,” in *ICASSP 2023 - 2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2023, pp. 1–5. [Online]. Available: <https://doi.org/10.1109/ICASSP49357.2023.10095943>
- [17] I. Buchnik, D. Steger, G. Revach, R. J. G. van Sloun, T. Routtenberg, and N. Shlezinger, “Learned Kalman Filtering in Latent Space with High-Dimensional Data,” in *ICASSP 2023 - 2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2023, pp. 1–5. [Online]. Available: <https://doi.org/10.1109/ICASSP49357.2023.10096006>
- [18] D. H. Shmuel, J. P. Merkofer, G. Revach, R. J. G. van Sloun, and N. Shlezinger, “Deep Root Music Algorithm for Data-Driven DoA Estimation,” in *ICASSP 2023 - 2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2023, pp. 1–5. [Online]. Available: <https://doi.org/10.1109/ICASSP49357.2023.10096504>
- [19] G. Revach, N. Greshler, and N. Shimkin, “Planning for Cooperative Multiple Agents with Sparse Interaction Constraints,” in *The online Proceedings of the 6th Workshop on Distributed and Multi-Agent Planning (DMAP) at ICAPS 2020*, 2020, pp. 48–56.

Journal Papers - Under Review

- [20] A. Milstein, H. Deng, G. Revach, H. Morgenstern, and N. Shlezinger, “Neural Augmented Kalman Filtering with Bollinger Bands for Pairs Trading,” *arXiv preprint arXiv:2210.15448*, 2023, Submitted to IEEE Transactions on Signal Processing. [Online]. Available: <https://arxiv.org/abs/2210.15448>
- [21] G. Revach, T. Locher, N. Shlezinger, R. J. G. van Sloun, and R. Vullings, “HKF: Hierarchical Kalman Filtering with Online Learned Evolution Priors for Adaptive ECG Denoising,” *arXiv preprint arXiv:2210.12807*, 2023, Submitted to IEEE Transactions on Signal Processing. [Online]. Available: <https://arxiv.org/abs/2210.12807>

Journal Papers - Pre-Print

- [22] D. H. Shmuel, J. P. Merkofer, G. Revach, R. J. G. van Sloun, and N. Shlezinger, “SubspaceNet: Deep Learning-Aided Subspace Methods for DoA Estimation,” *arXiv preprint arXiv:2306.02271*, 2023. [Online]. Available: <https://arxiv.org/abs/2306.02271>
- [23] S. Truzman, G. Revach, N. Shlezinger, and I. Klein, “Outlier-Insensitive Kalman Filtering: Theory and Applications,” *arXiv preprint arXiv:2309.09505*, 2023. [Online]. Available: <https://arxiv.org/abs/2309.09505>

Conference Papers - Under Review

- [24] M. Zhao, G. Revach, T. Routtenberg, and N. Shlezinger, “NUV-DoA: NUV Prior-based Bayesian Sparse Reconstruction with Spatial Filtering for Super-Resolution DoA Estimation,” *arXiv preprint arXiv:2309.03114*, 2023, Submitted to ICASSP 2024. [Online]. Available: <https://arxiv.org/abs/2309.03114>
- [25] X. Ni, G. Revach, and N. Shlezinger, “Adaptive KalmanNet: Data-Driven Kalman Filter With Fast Adaptation,” *arXiv preprint arXiv:2309.07016*, 2023, Submitted to ICASSP 2024. [Online]. Available: <https://arxiv.org/abs/2309.07016>
- [26] Y. Dahan, G. Revach, J. Dunik, and N. Shlezinger, “Uncertainty Quantification in Deep Learning Based Kalman Filters,” *arXiv preprint arXiv:2309.03058*, 2023, Submitted to ICASSP 2024. [Online]. Available: <https://arxiv.org/abs/2309.03058>

Conference Posters

- [27] L. H. Cubillos, G. Revach, J. Costello, H. Temmar, M. J. Mender, X. Ni, M. Kelberman, D. Wallace, M. S. Willsey, R. J. G. van Sloun, N. Shlezinger, P. G. Patil, and C. A. Chestek, “A Deep-Learning-Augmented Kalman Filter for High-Performance Intracortical Decoding,” in *Society for Neuroscience 2023*, Washington DC, USA, 2023. [Online]. Available: <https://people.ee.ethz.ch/~grevach/sfn2023-poster.pdf>

Thesis

- [28] G. Revach, “Planning for Cooperative Multiple Agents with Sparse Interactions,” Master’s thesis, Technion-Israel Institute of Technology, 2018.