

# Publications

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## Peer-reviewed publications

Cao, H., Rajan, S., Hahn, B., Kocak, E., Brenner, M., Hess, F., **Schefzik, R.**, Durstewitz, D., Koppe, G., Schwarz, E., and Schneider-Lindner, V. (2026). A multi-task learning approach combining regression and classification tasks for joint feature selection. *Scientific Reports*, 16, 12699. DOI: 10.1038/s41598-026-43551-3

Scarlatti, F., Dormegny-Jeanjean, L., **Schefzik, R.**, Foucher, J. R., Banaschewski, T., Bokde, A. L. W., Brühl, R., Desriviers, S., Garavan, H., Gowland, P., Grigis, A., Heinz, A., Martinot, J.-L., Paillère Martinot, M.-L., Artiges, E., Papadopoulos Orfanos, D., Poustka, L., Smolka, M. N., Hohmann, S., Vaidya, N., Walter, H., Whelan, R., Schumann, G., Nees, F., Schwarz, E., Löffler, M., Flor, H., and IMAGEN Consortium (2026). Neural and psychosocial signatures of the comorbidity between pain and affective symptoms. *PAIN Reports*, 11, e1353. DOI: 10.1097/PR9.0000000000001353

**Schefzik, R.**, Cao, H., Rajan, S., Escribà-Montagut, X., González, J. R., and Schwarz, E. (2025). Integrating differential privacy into federated multi-task learning algorithms in dsMTL. *Bioinformatics Advances*, 5, vbaf298. DOI: 10.1093/bioadv/vbaf298

Schaefer, N., Lindner, H. A., Hahn, B., **Schefzik, R.**, Velásquez, S. Y., Schulte, J., Fuderer, T., Centner, F.-S., Schoettler, J. J., Himmelhan, B. S., Sturm, T., Thiel, M., Schneider-Lindner, V., and Coulibaly, A. (2023). Pneumonia in the first week after polytrauma is associated with reduced blood levels of soluble herpes virus entry mediator. *Frontiers in Immunology*, 14, 1259423. DOI: 10.3389/fimmu.2023.1259423

**Schefzik, R.**, Hahn, B., and Schneider-Lindner, V. (2023). Dissecting contributions of individual systemic inflammatory response syndrome criteria from a prospective algorithm to the prediction and diagnosis of sepsis in a polytrauma cohort. *Frontiers in Medicine*, 10, 1227031. DOI: 10.3389/fmed.2023.1227031

**Schefzik, R.**, Boland, L., Hahn, B., Kirschning, T., Lindner, H. A., Thiel, M., and Schneider-Lindner, V. (2022). Differential network testing reveals diverging dynamics of organ system interactions for survivors and non-survivors in intensive care medicine. *Frontiers in Physiology*, 12, 801622. DOI: 10.3389/fphys.2021.801622

Velásquez, S. Y., Coulibaly, A., Sticht, C., Schulte, J., Hahn, B., Sturm, T., **Schefzik, R.**, Thiel, M., and Lindner, H. A. (2022). Key signature genes of early terminal granulocytic differentiation distinguish sepsis from systemic inflammatory response syndrome on intensive care unit admission. *Frontiers in Immunology*, 13, 864835. DOI: 10.3389/fimmu.2022.864835

**Schefzik, R.**, Flesch, J., and Goncalves, A. (2021). Fast identification of differential distributions in single-cell RNA-sequencing data with waddR. *Bioinformatics*, 37, 3204-3211. DOI: 10.1093/bioinformatics/btab226

**Schefzik, R.** (2021). SimBPDD: Simulating differential distributions in Beta-Poisson models, in particular for single-cell RNA sequencing data. *Annales Mathematicae et Informaticae*, 53, 283-298. DOI: 10.33039/ami.2021.03.003

Lerch, S., Baran, S., Möller, A., Groß, J., **Schefzik, R.**, Hemri, S., and Graeter, M. (2020). Simulation-based comparison of multivariate ensemble post-processing methods. *Nonlinear Processes in Geophysics*, 27, 349-371. DOI: 10.5194/npg-27-349-2020

Baser, A., Skabkin, M., Kleber, S., Dang, Y., Gülcüler Balta, G. S., Kalamakis, G., Göpferich, M., Carvajal Ibañez, D., **Schefzik, R.**, Santos Lopez, A., Llorens Bobadilla, E., Schultz, C., Fischer, B., and Martin-Villalba, A. (2019). Onset of differentiation is posttranscriptionally controlled in adult neural stem cells. *Nature*, 566, 100-104. DOI: 10.1038/s41586-019-0888-x

**Schefzik, R.**, and Möller, A. (2018). Ensemble postprocessing methods incorporating dependence structures. In: Vannitsem, S., Wilks, D. S., and Messner, J. W. (Editors), *Statistical Postprocessing of Ensemble Forecasts*, Elsevier. DOI: 10.1016/B978-0-12-812372-0.00004-2

Zorea, J., Prasad, M., Cohen, L., Li, N., **Schefzik, R.**, Ghosh, S., Rotblat, B., Brors, B., and Elkabets, M. (2018). IGF1R upregulation confers resistance to isoform-specific inhibitors of PI3K in PIK3CA-driven ovarian cancer. *Cell Death & Disease*, 9, 944. DOI: 10.1038/s41419-018-1025-8

**Schefzik, R.** (2017). Ensemble calibration with preserved correlations: unifying and comparing ensemble copula coupling and member-by-member postprocessing. *Quarterly Journal of the Royal Meteorological Society*, 143, 999-1008. DOI: 10.1002/qj.2984

**Schefzik, R.** (2016). A similarity-based implementation of the Schaake shuffle. *Monthly Weather Review*, 144, 1909-1921. DOI: 10.1175/MWR-D-15-0227.1

**Schefzik, R.** (2016). Combining parametric low-dimensional ensemble postprocessing with reordering methods. *Quarterly Journal of the Royal Meteorological Society*, 142, 2463-2477. DOI: 10.1002/qj.2839

**Schefzik, R.** (2015). Multivariate discrete copulas, with applications in probabilistic weather forecasting. *Annales de l'I.S.U.P. – Publications de l'Institut de Statistique de l'Université de Paris*, 59, fasc. 1-2, 87-116. URL: <https://hal.science/hal-03604810>

**Schefzik, R.**, Thorarinsdottir, T. L., and Gneiting, T. (2013). Uncertainty quantification in complex simulation models using ensemble copula coupling. *Statistical Science*, 28, 616-640. DOI: 10.1214/13-STS443

#### Working papers

**Schefzik, R.**, Heutehaus, L., Schuld, C., Gradinger, T., Berhe, O., Maier, D., Saur, M., Röhl, K., Abel, R., Pavese, C., Baumberger, M., Curt, A., Hubli, M., Chhabra, H. S., EMSCI Study Group, Dannowski, U., Kircher, T., Weidner, N., and Schwarz, E. (2026). Characterization of depressive symptoms in individuals with spinal cord injury through the Beck Depression Inventory, and their role in recovery. *Submitted manuscript*.

Scarlatti, F., Dormegny-Jeanjean, L., **Schefzik, R.**, Banaschewski, T., Bokde, A. L. W., Brühl, R., Desriviers, S., Garavan, H., Gowland, P., Grigis, A., Heinz, A., Martinot, J.-L., Paillère Martinot, M.-L., Artiges, E., Papadopoulos Orfanos, D., Poustka, L., Smolka, M. N., Hohmann, S., Vaidya, N., Walter, H., Whelan, R., Schumann, G., Nees, F., Schwarz, E., Löffler, M., Foucher, J. R., Flor, H., and IMAGEN Consortium (2025). Chronic pain is linked to a resting-state neural archetype that optimizes learning from punishments. *Submitted manuscript*.

#### Software packages

**Schefzik, R.**, Cao, H., Escribà-Montagut, X., and González, J. R. (2025). DPMTL: R package for differential privacy in multi-task learning approaches. Available at <https://github.com/RomanSchefzik/DPMTL>.

**Schefzik, R.**, and Boland, L. (2021). DNT: R package for testing for differential statistical networks.

Available at <https://github.com/RomanScheffzik/DNT>.

**Scheffzik, R.** (2020). *SimBPDD*: R package for the simulation of differential distributions in Beta-Poisson models, in particular for single-cell RNA sequencing data.

Available at <https://github.com/RomanScheffzik/SimBPDD>.

**Scheffzik, R.,** and Flesch, J. (2019). *waddR*: R/Bioconductor package for testing for differential distributions using Wasserstein distances, in particular for single-cell RNA sequencing data.

Available at <https://github.com/goncalves-lab/waddR>.

*last updated: April 23, 2026*