

## List of Publications

### Journal Articles

1. Weber L, Berend J, Weckbecker M, Binder A, Wiegand T, Samek W and **Lapuschkin S** (2025).  
“Efficient and Flexible Neural Network Training through Layer-wise Feedback Propagation”.  
In: *Transactions on Machine Learning Research* 2835–8856.  
<https://github.com/leanderweber/layerwise-feedback-propagation>
2. Hedström A, Bommer P L, Burns T F, **Lapuschkin S**, Samek W and Höhne M-C M (2025).  
“Evaluating Interpretable Methods via Geometric Alignment of Functional Distortions”.  
In: *Transactions on Machine Learning Research* 2835–8856.  
<https://github.com/annahedstroem/GEF/> | *TMLR Survey Certification*
3. Bley F, **Lapuschkin S**, Samek W and Montavon G (2025).  
“Explaining Predictive Uncertainty by Exposing Second-Order Effects”.  
In: *Pattern Recognition* 160:111171.  
<https://github.com/florianbley/XAI-2ndOrderUncertainty>
4. Vielhaben J, **Lapuschkin S**, Montavon G and Samek W (2024).  
“Explainable AI for Time Series via Virtual Inspection Layers”.  
In: *Pattern Recognition* 150:110309.  
<https://github.com/jvielhaben/DFT-LRP>
5. Becker S, Vielhaben J, Ackermann M, Müller K-R, **Lapuschkin S** and Samek W (2024).  
“AudioMNIST: Exploring Explainable Artificial Intelligence for Audio Analysis on a Simple Benchmark”.  
In: *Journal of the Franklin Institute* 361(1):418–428.  
<https://github.com/soerenab/AudioMNIST>
6. Achibat R, Dreyer M, Eisenbraun I, Bosse S, Wiegand T, Samek W and **Lapuschkin S** (2023).  
“From attribution maps to human-understandable explanations through Concept Relevance Propagation”.  
In: *Nature Machine Intelligence* 5(9):1006–1019.  
<https://github.com/rachibat/zennit-crp> | <https://github.com/maxdreyer/crp-human-study>
7. Hedström A, Bommer P, Wickström K K, Samek W, **Lapuschkin S** and Höhne M-C M (2023).  
“The Meta-Evaluation Problem in Explainable AI: Identifying Reliable Estimators with MetaQuantus”.  
In: *Transactions on Machine Learning Research* 2835–8856.  
<https://github.com/annahedstroem/MetaQuantus>
8. Weber L, **Lapuschkin S**, Binder A and Samek W (2023).  
“Beyond Explaining: Opportunities and Challenges of XAI-Based Model Improvement”.  
In: *Information Fusion* 92:154–176
9. Hedström A, Weber L, Krakowczyk D G, Bareeva D, Motzkus F, Samek W, **Lapuschkin S** and Höhne M-C M (2023).  
“Quantus: An Explainable AI Toolkit for Responsible Evaluation of Neural Network Explanations and Beyond”.  
In: *Journal of Machine Learning Research* 24(34):1–11.  
<https://github.com/understandable-machine-intelligence-lab/quantus>
10. Hofmann S M, Beyer F, **Lapuschkin S**, Golterman O, Loeffler M, Müller K-R, Villringer A, Samek W and Witte A V (2022).  
“Towards the Interpretability of Deep Learning Models for Multi-modal Neuroimaging: Finding Structural Changes of the Ageing Brain”.  
In: *NeuroImage* 261:119504
11. Ma J, Schneider L, **Lapuschkin S**, Achibat R, Durchrau M, Krois J, Schwendicke F and Samek W (2022).  
“Towards Trustworthy AI in Dentistry”.  
In: *Journal of Dental Research* 00220345221106086
12. Rieckmann A, Dworzynski P, Arras L, **Lapuschkin S**, Samek W, Onyebuchi A A, Rod N H, Ekstrøm C T (2022).  
“Causes of Outcome Learning: A Causal Inference-inspired Machine Learning Approach to Disentangling Common Combinations of Potential Causes of a Health Outcome”.  
In: *International Journal of Epidemiology* dyac078.  
<https://github.com/ekstroem/cool> | <https://www.causesofoutcomelearning.org>
13. Slijepcevic D, Horst F, **Lapuschkin S**, Horsak B, Raberger A-M, Kranzl A, Samek W, Breiteneder C, Schöllhorn W I and Zeppelzauer M (2022).

- "Explaining Machine Learning Models for Clinical Gait Analysis".  
In: *ACM Transactions on Computing for Healthcare* 3(2):14:1–27.  
<https://github.com/sebastian-lapuschkin/explaining-deep-clinical-gait-classification>
14. Anders C J, Weber L, Neumann D, Samek W, Müller K-R and **Lapuschkin S** (2022).  
"Finding and Removing Clever Hans: Using Explanation Methods to Debug and Improve Deep Models".  
In: *Information Fusion* 77:261–295
  15. Sun J, **Lapuschkin S**, Samek W and Binder A (2022).  
"Explain and Improve: LRP-inference Fine-tuning for Image Captioning Models".  
In: *Information Fusion* 77:233–246
  16. Samek W, Montavon G, **Lapuschkin S**, Anders C J, and Müller K-R (2021).  
"Explaining Deep Neural Networks and Beyond: A Review of Methods and Applications".  
In: *Proceedings of the IEEE* 109(3):247–278
  17. Yeom S-K, Seegerer P, **Lapuschkin S**, Binder A, Wiedemann S, Müller K-R and Samek W (2021).  
"Pruning by Explaining: A Novel Criterion for Deep Neural Network Pruning".  
In: *Pattern Recognition* 115:107899.  
[https://github.com/seulkiyeom/LRP\\_pruning](https://github.com/seulkiyeom/LRP_pruning) | [https://github.com/seulkiyeom/LRP\\_Pruning\\_toy\\_example](https://github.com/seulkiyeom/LRP_Pruning_toy_example)
  18. Aeles J, Horst F, **Lapuschkin S**, Lacourpaille L, and Hug F (2021).  
"Revealing the Unique Features of Each Individual's Muscle Activation Signatures".  
In: *Journal of the Royal Society Interface* 18(174):20200770.  
<https://github.com/sebastian-lapuschkin/interpretable-emg-signatures>
  19. Horst F, Slijepcevic D, Zeppelzauer M, Raberger AM, **Lapuschkin S**, Samek W, Schöllhorn WI, Breiteneder C, and Horsak B (2020).  
"Explaining Automated Gender Classification of Human Gait".  
In: *Gait & Posture* 81(S1):159–160
  20. Hägele M, Seegerer P, **Lapuschkin S**, Bockmayr M, Samek W, Klauschen F, Müller K-R and Binder A (2020).  
"Resolving Challenges in Deep Learning-based Analyses of Histopathological Images using Explanation Methods".  
In: *Scientific Reports* 10:6423
  21. Alber M, **Lapuschkin S**, Seegerer P, Hägele M, Schütt K T, Montavon G, Samek W, Müller K-R, Dähne S and Kindermans P-J (2019).  
"iNNvestigate Neural Networks!".  
In: *Journal of Machine Learning Research* 20(93):1–8.  
<https://github.com/albermax/innvestigate>
  22. **Lapuschkin S**, Wäldchen S, Binder A, Montavon G, Samek W and Müller K-R (2019).  
"Unmasking Clever Hans Predictors and Assessing what Machines Really Learn".  
In: *Nature Communications* 10:1069
  23. Horst F, **Lapuschkin S**, Samek W, Müller K-R and Schöllhorn W I (2019).  
"Explaining the Unique Nature of Individual Gait Patterns with Deep Learning".  
In: *Scientific Reports* 9:2391.  
<https://github.com/sebastian-lapuschkin/interpretable-deep-gait>
  24. Montavon G, **Lapuschkin S**, Binder A, Samek W and Müller K-R (2017).  
"Explaining NonLinear Classification Decisions with Deep Taylor Decomposition".  
In: *Pattern Recognition* 65:211–222.  
*Pattern Recognition Best Paper Award and Pattern Recognition Medal winner*
  25. Samek W, Binder A, Montavon G, **Lapuschkin S**, and Müller K-R (2017).  
"Evaluating the Visualization of what a Deep Neural Network has Learned".  
In: *IEEE Transactions of Neural Networks and Learning Systems*
  26. Sturm I, **Lapuschkin S**, Samek W and Müller K-R (2016).  
"Interpretable Deep Neural Networks for Single-Trial EEG Classification".  
In: *Journal of Neuroscience Methods* 274:141–145
  27. **Lapuschkin S**, Binder A, Montavon G, Müller K-R and Samek W (2016).  
"The Layer-wise Relevance Propagation Toolbox for Artificial Neural Networks".  
In: *Journal of Machine Learning Research* 17(114):1–5.  
[https://github.com/sebastian-lapuschkin/lrp\\_toolbox](https://github.com/sebastian-lapuschkin/lrp_toolbox)
  28. **Bach S**, Binder A, Montavon G, Klauschen F, Müller K-R and Samek W (2015).  
"On Pixel-wise Explanations for Non-Linear Classifier Decisions by Layer-wise Relevance Propagation".  
In: *PLoS ONE* 10(7):e0130140

## Contributions to Conference Proceedings and Workshops

1. Pahde F, Dreyer M, Weckbecker M, Weber L, Anders C J, Wiegand T, Samek W and **Lapuschkin S** (2025). "Navigating Neural Space: Revisiting Concept Activation Vectors to Overcome Directional Divergence". In: *Proceedings of the International Conference on Learning Representations (ICLR)* TBA. <https://github.com/frederikpahde/pattern-cav>
2. Bareeva D, Yolcu G Ü, Hedström A, Wiegand T, Samek W **Lapuschkin S** (2024). "Quanda: An Interpretability Toolkit for Training Data Attribution Evaluation and Beyond". In: *NeuRIPS 2024 Workshop on Attributing Model Behavior at Scale (ATTRIB 2024)* . <https://github.com/dilyabareeva/quanda>
3. Naujoks J R, Krasowski A, Weckbecker M, Wiegand T, **Lapuschkin S**, Samek W and Klausen R P (2024). "PINNfluence: Influence Functions for Physics-Informed Neural Networks". In: *NeuRIPS 2024 Workshop on Machine Learning and the Physical Sciences (ML4PS)* . <https://github.com/aleks-krasowski/PINNfluence>  
Reproducibility Badge Winner
4. Kopf L, Bommer P L, Hedström A, **Lapuschkin S**, Höhne M M-C and Bykov K (2024). "CoSy: Evaluating Textual Explanations of Neurons". In: *Advances in Neural Information Processing Systems (NeuRIPS)* 34656–34685. (OpenReview) <https://github.com/lkopf/cosy>
5. Nobis G, Springenberg M, Aversa M, Detzel M, Daems R, Murray-Smith R, Nakajima S, **Lapuschkin S**, Ermon S, Birdal T, Oppel M, Knochenhauer C, Oala L and Samek W (2024). "Generative Fractional Diffusion Models". In: *Advances in Neural Information Processing Systems (NeuRIPS)* 25469–25509. (OpenReview) <https://github.com/GabrielNobis/gfdm>
6. Mekala R R, Pahde F, Baur S, Chandrashekar S, Diep M, Wenzel M A, Wisotzky E L, Yolcu G Ü, **Lapuschkin S**, Ma J, Eisert P, Lindvall M, Porter A and Samek W (2024). "Synthetic Generation of Dermatoscopic Images with GAN and Closed-Form Factorization". In: *ECCV 2024 Workshop on Synthetic Data for Computer Vision (SyntheticData4CV)* TBA. (Green Open Access)
7. Achibat R, Hatefi S M V, Dreyer M, Jain A, Wiegand T, **Lapuschkin S**, Samek W (2024). "AttnLRP: Attention-Aware Layer-wise Relevance Propagation for Transformers". In: *Proceedings of the 41st International Conference on Machine Learning (ICML)* 135–168. <https://github.com/rachibat/LRP-for-Transformers>
8. Hatefi S M V, Dreyer M, Achibat R, Wiegand T, Samek W and **Lapuschkin S** (2024). "Pruning By Explaining Revisited: Optimizing Attribution Methods to Prune CNNs and Transformers". In: *Proceedings of the European Conference on Computer Vision (ECCV) Workshops* 152–169. (Green Open Access) <https://github.com/erfanhatefi/Pruning-by-eXplaining-in-PyTorch>
9. Hedström A, Weber L, **Lapuschkin S**, Höhne M M-C (2024). "A Fresh Look at Sanity Checks for Saliency Maps". In: *Proceedings of the 2nd XAI World Conference* 403–420. (Green Open Access) <https://github.com/annahedstroem/sanity-checks-revisited>
10. Tinauer C, Damulina A, Sackl M, Soellradl M, Achibat R, Dreyer M, Pahde F, **Lapuschkin S**, Schmidt R, Ropele S, Samek W, Langkammer C (2024). "Explainable Concept Mappings of MRI: Revealing the Mechanisms Underlying Deep Learning-based Brain Disease Classification". In: *Proceedings of the 2nd XAI World Conference* 202–216. (Green Open Access)
11. Dreyer M, Pürelku E, Vielhaben J, Samek W, **Lapuschkin S** (2024). "PURE: Turning Polysemantic Neurons Into Pure Features by Identifying Relevant Circuits". In: *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops* 8212–8217. <https://github.com/maxdreyer/PURE> | Spotlight Paper
12. Bareeva D, Dreyer M, Pahde F, Samek W and **Lapuschkin S** (2024). "Reactive Model Correction: Mitigating Harm to Task-Relevant Features via Conditional Bias Suppression". In: *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops* 3532–3541. [https://github.com/dilyabareeva/reactive\\_correction](https://github.com/dilyabareeva/reactive_correction)

13. Dreyer M, Achibat R, Samek W and **Lapuschkin S** (2024).  
 “Understanding the (Extra-)Ordinary: Validating Deep Model Decisions with Prototypical Concept-based Explanations”.  
 In: *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops* 3491–3501.  
<https://github.com/maxdreyer/pcx>
14. Dreyer M, Pahde F, Anders C J, Samek W and **Lapuschkin S** (2024).  
 “From Hope to Safety: Unlearning Biases of Deep Models via Gradient Penalization in Latent Space”.  
 In: *Proceedings of the AAAI Conference on Artificial Intelligence (AAAI)* 38(19):21046–21054.  
<https://github.com/frederikpahde/rrclarc>
15. Dawoud K, Samek W, Eisert P, **Lapuschkin S** and Bosse S (2023).  
 “Human-Centered Evaluation of XAI Methods”.  
 In: *Proceedings of the IEEE International Conference on Data Mining (ICDM)* 912–921. (Green Open Access)
16. Frommholz A, Seipel F, **Lapuschkin S**, Samek W and Vielhaben J (2023).  
 “XAI-based Comparison of Audio Event Classifiers with different Input Representations”.  
 In: *Proceedings of the International Conference on Content-based Multimedia Indexing (CBMI)* 126–132
17. Hedström A, Weber L, **Lapuschkin S** and Höhne M M-C (2023).  
 “Sanity Checks Revisited: An Exploration to Repair the Model Parameter Randomisation Test”.  
 In: *NeuRIPS 2023 Workshop on XAIX (XAI in Action: Past, Present, and Future Applications)* (vVpefYmnsG)
18. Pahde F, Dreyer M, Samek W and **Lapuschkin S** (2023).  
 “Reveal to Revise: An Explainable AI Life Cycle for Iterative Bias Correction of Deep Models”.  
 In: *Proceedings of the International Conference on Medical Image Computing and Computer-Assisted Intervention* 596–606. (Green Open Access)  
<https://github.com/maxdreyer/reveal2revise>
19. Binder A, Weber L, **Lapuschkin S**, Montavon G, Müller K-R and Samek W (2023).  
 “Shortcomings of Top-Down Randomization-Based Sanity Checks for Evaluations of Deep Neural Network Explanations”.  
 In: *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)* 16143–16152
20. Dreyer M, Achibat R, Wiegand T, Samek W and **Lapuschkin S** (2023).  
 “Revealing Hidden Context Bias in Segmentation and Object Detection through Concept-specific Explanations”.  
 In: *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops* 3828–3838
21. Pahde F, Yolcu GÜ, Binder A, Samek W and **Lapuschkin S** (2023).  
 “Optimizing Explanations by Network Canonization and Hyperparameter Search”.  
 In: *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops* 3818–3827
22. Krakowczyk D G, Prasse P, Reich D R, **Lapuschkin S**, Scheffer T, Jäger L A (2023).  
 “Bridging the Gap: Gaze Events as Interpretable Concepts to Explain Deep Neural Sequence Models”.  
 In: *Proceedings of the Symposium on Eye Tracking Research and Applications (ETRA)* 1–8.  
 Best Short Paper Award Winner
23. Krakowczyk D G, Reich D R, Prasse P, **Lapuschkin S**, Jäger L A and Scheffer T (2022).  
 “Selection of XAI Methods Matters: Evaluation of Feature Attribution Methods for Oculomotoric Biometric Identification”.  
 In: *NeuRIPS 2022 Workshop on Gaze Meets ML (GOLdDAP2AtI)*
24. Motzkus F, Weber L and **Lapuschkin S** (2022).  
 “Measurably Stronger Explanation Reliability via Model Canonization”.  
 In: *Proceedings of the International Conference on Image Processing (ICIP)* 516–520
25. Ede S, Baghdadlian S, Weber L, Nguyen A, Zanca D, Samek W and **Lapuschkin S** (2022).  
 “Explain to Not Forget: Defending Against Catastrophic Forgetting with XAI”.  
 In: *Proceedings of the International Cross-Domain Conference for Machine Learning and Knowledge Extraction (CD-MAKE)* 1–18. (Gold Open Access link)
26. Sun J, **Lapuschkin S**, Samek W, Zhao Y, Cheung N-M and Binder A (2021).  
 “Explanation-Guided Training for Cross-Domain Few-Shot Classification”.  
 In: *Proceedings of the 25th International Conference on Pattern Recognition (ICPR)* 7609–7616
27. Goh G S W, **Lapuschkin S**, Weber L, Samek W and Binder A (2021).  
 “Understanding Integrated Gradients with SmoothTaylor for Deep Neural Network Attribution”.  
 In: *Proceedings of the 25th International Conference on Pattern Recognition (ICPR)* 4949–4956

28. Kohlbrenner M, Bauer A, Nakajima S, Binder A, Samek W, and **Lapuschkin S** (2020).  
“Towards Best Practice in Explaining Neural Network Decisions with LRP”.  
In: *Proceedings of the IEEE International Joint Conference on Neural Networks (IJCNN)* 1-7
29. Sun J, **Lapuschkin S**, Samek W and Binder A (2020).  
“Understanding Image Captioning Models beyond Visualizing Attention”.  
In: *XXAI: Extending Explainable AI Beyond Deep Models and Classifiers. ICML Workshop*
30. Anders C J, Neumann D, Marinč T, Samek W, Müller K-R and **Lapuschkin S** (2020).  
“XAI for Analyzing and Unlearning Spurious Correlations in ImageNet”.  
In: *XXAI: Extending Explainable AI Beyond Deep Models and Classifiers. ICML Workshop*
31. Sun J, **Lapuschkin S**, Samek W, Zhao Y, Cheung N-M and Binder A (2020).  
“Explain and Improve: Cross-Domain-Few-Shot-Learning Using Explanations”.  
In: *XXAI: Extending Explainable AI Beyond Deep Models and Classifiers. ICML Workshop*
32. Alber M, **Lapuschkin S**, Seegerer P, Hägele M, Schütt K T, Montavon G, Samek W, Müller K-R, Dähne S and Kindermans P-J (2018).  
“How to iNNvestigate Neural Networks’ Predictors!”.  
In: *Machine Learning Open Source Software: Sustainable Communities. NIPS Workshop*
33. **Lapuschkin S**, Binder A, Müller K-R and Samek W (2017).  
“Understanding and Comparing Deep Neural Networks for Age and Gender Classification”.  
In: *Proceedings of the ICCV’17 Workshop on Analysis and Modeling of Faces and Gestures (AMFG)* 2017:1629-1638
34. Srinivasan V, **Lapuschkin S**, Hellge C, Müller K-R and Samek W (2017).  
“Interpretable Action Recognition in Compressed Domain”.  
In: *Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)* 2017:1692-1696
35. **Bach S**, Binder A, Müller K-R and Samek W (2016).  
“Controlling Explanatory Heatmap Resolution and Semantics via Decomposition Depth”.  
In: *Proceedings of the IEEE International Conference of Image Processing (ICIP)* 2016:2271-2275
36. Binder A, Samek W, Montavon G, **Bach S**, and Müller K-R (2016).  
“Analyzing and Validating Neural Network Predictions”.  
In: *Proceedings of the ICML’16 Workshop on Visualization for Deep Learning . Best Paper Award Winner*
37. **Lapuschkin S**, Binder A, Montavon G, Müller K-R and Samek W (2016).  
“Analyzing Classifiers: Fisher Vectors and Deep Neural Networks”.  
In: *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)* 2016:2912-2920
38. Montavon G, **Bach S**, Binder A, Samek W and Müller K-R (2016).  
“Deep Taylor Decomposition of Neural Networks”.  
In: *Proceedings of the ICML’16 Workshop on Visualization for Deep Learning* 2016:1-3
39. Samek W, Montavon G, Binder A, **Lapuschkin S** and Müller K-R (2016).  
“Interpreting the Predictions of Complex ML Models by Layer-wise Relevance Propagation”.  
In: *Proceedings of the Interpretable ML for Complex Systems NIPS’16 Workshop*

## Books

1. Longo L, **Lapuschkin S** and Seifert C, editors (2024).  
“Explainable Artificial Intelligence (Second World Conference, xAI 2024, Valletta, Malta, July 17–19, 2024, Proceedings, Part I-IV)”.  
Springer (Cham), Part I ISBN: 978-3-031-63787-2. Part II ISBN: 978-3-031-63797-1.  
Part III ISBN: 978-3-031-63800-8. Part IV ISBN: 978-3-031-63803-9

## Book Chapters

1. Becking D, Dreyer M, Samek W, Müller K and **Lapuschkin S** (2022).  
“ECQ<sup>x</sup>: Explainability-Driven Quantization for Low-Bit and Sparse DNNs”.  
In: *xxAI – Beyond Explainable AI* 271-296. Springer, Cham
2. Montavon G, Binder A, **Lapuschkin S**, Samek W and Müller K-R (2019).  
“Layer-wise relevance propagation: An Overview”.  
In: *Explainable AI: Interpreting, Explaining and Visualizing Deep Learning* 193-209. Springer, Cham
3. Binder A, **Bach S**, Montavon G, Müller K-R and Samek W (2016).  
“Layer-wise Relevance Propagation for Deep Neural Network Architectures”.  
In: *Information Science and Applications (ICISA) 2016. Lecture Notes in Electrical Engineering* 276:913-922. Springer, Singapore

4. Binder A, Montavon G, **Lapuschkin S**, Müller K-R and Samek W (2016).  
 “Layer-wise Relevance Propagation for Neural Networks with Local Renormalization Layers”.  
 In: *Lecture Notes in Computer Science* 9887:63-71. Springer, Berlin/Heidelberg

## Preprints

1. Naujoks J, Krasowski A, Weckbecker M, Yolcu G Ü, Wiegand T, **Lapuschkin S**, Samek W and Klausen R (2025).  
 “Leveraging Influence Functions for Resampling Data in Physics-Informed Neural Networks”.  
 In: *CoRR abs/2506.16443*.  
[https://github.com/aleks-krasowski/PINNfluence\\_resampling](https://github.com/aleks-krasowski/PINNfluence_resampling)  
 Accepted for publication at the XAI World Conference 2025
2. Labarta T, Hoang N, Weitz K, Samek W, **Lapuschkin S** and Weber L (2025).  
 “See What I Mean? CUE: A Cognitive Model of Understanding Explanations”.  
 In: *CoRR abs/2506.14775*.  
 Accepted for publication at the IJCAI 2025 XAI Workshop
3. Hatefi S M V, Dreyer M, Achibat R, Kahardipraja P, Wiegand T, Samek W and **Lapuschkin S** (2025).  
 “Attribution-guided Pruning for Compression, Circuit Discovery, and Targeted Correction in LLMs”.  
 In: *CoRR abs/2506.13727*.  
<https://github.com/erfanhatefi/SparC3>
4. Cantú E D, Wittmann R K, Abdeen O, Wagner P, Samek W, Baier M and **Lapuschkin S** (2025).  
 “Deep Learning-based Multi Project InP Wafer Simulation for Unsupervised Surface Defect Detection”.  
 In: *CoRR abs/2506.10713*
5. Gururaj S, Grüne L, Samek W, **Lapuschkin S** and Weber L (2025).  
 “Relevance-driven Input Dropout: an Explanation-guided Regularization Technique”.  
 In: *CoRR abs/2505.21595*.  
[https://github.com/Shreyas-Gururaj/LRP\\_Relevance\\_Dropout](https://github.com/Shreyas-Gururaj/LRP_Relevance_Dropout)
6. Dreyer M, Hufe L, Berend J, Wiegand T, **Lapuschkin S** and Samek W (2025).  
 “From What to How: Attributing CLIP’s Latent Components Reveals Unexpected Semantic Reliance”.  
 In: *CoRR abs/2505.20229*.  
<https://github.com/maxdreyer/attributing-clip>
7. Kahardipraja P, Achibat R, Wiegand T, Samek W and **Lapuschkin S** (2025).  
 “The Atlas of In-Context Learning: How Attention Heads Shape In-Context Retrieval Augmentation”.  
 In: *CoRR abs/2505.15807*. <https://github.com/pkhdipraja/in-context-atlas>
8. Hufe L, Venhoff C, Dreyer M, **Lapuschkin S** and Samek W (2025).  
 “Dyslexify: A Mechanistic Defense Against Typographic Attacks in CLIP”.  
 In: *OpenReview: yFPsLBa53p*
9. Hatefi S M V, Dreyer M, Achibat R, Kahardipraja P, Wiegand T, Samek W and **Lapuschkin S** (2025).  
 “Attribution-guided Pruning for Compression, Circuit Discovery, and Targeted Correction in LLMs”.  
 In: *OpenReview: YKF9pMAXRv*
10. Bareeva D, Höhne M M C, Warnecke A, Pirch L, Müller K-R, Rieck K, **Lapuschkin S** and Bykov K (2025).  
 “Manipulating Feature Visualizations with Gradient Slingshots”.  
 In: *OpenReview: TgcZQwE1Iu*
11. Zverev E, Kortukov E, Panfilov A, Volkova A, Tabesh S, **Lapuschkin S**, Samek W and Lampert C H (2025).  
 “ASIDE: Architectural Separation of Instructions and Data in Language Models”.  
 In: *CoRR abs/2503.10566*
12. Joseph S, Suresh P, Hufe L, Stevinson E, Graham R, Vadi Y, Bzdok D, **Lapuschkin S**, Sharkey L and Richards B A (2025).  
 “Prisma: An Open Source Toolkit for Mechanistic Interpretability in Vision and Video”.  
 In: *OpenReview: 2WpymqQWQm*.  
<https://huggingface.co/Prisma-Multimodal> | <https://github.com/soniajoseph/ViT-Prisma>  
 Accepted for publication at the MIV Workshop during CVPR 2025
13. Erogullari E, **Lapuschkin S**, Samek W and Pahde F (2025).  
 “Post-Hoc Concept Disentanglement: From Correlated to Isolated Concept Representations”.  
 In: *CoRR abs/2503.05522*.  
<https://github.com/erenerogullari/cav-disentanglement>  
 Accepted for publication at the XAI World Conference 2025

14. Puri B, Jain A, Golimblevskaia E, Kahardipraja P, Wiegand T, Samek W and **Lapuschkin S** (2025).  
“FADE: Why Bad Descriptions Happen to Good Features”.  
In: *CoRR abs/2502.16994*.  
*Accepted for publication with ACL Findings*  
<https://github.com/brunibrun/FADE>
15. Arras L, Puri B, Kahardipraja P, **Lapuschkin S** and Samek W (2025).  
“A Close Look at Decomposition-based XAI-Methods for Transformer Language Models”.  
In: *CoRR abs/2502.15886*
16. Pahde F, Wiegand T, **Lapuschkin S** and Samek W (2025).  
“Ensuring Medical AI Safety: Explainable AI-Driven Detection and Mitigation of Spurious Model Behavior and Associated Data”.  
In: *CoRR abs/2501.13818*.  
<https://github.com/frederikpahde/medical-ai-safety>
17. Dreyer M, Berend J, Labarta T, Vielhaben J, Wiegand T, **Lapuschkin S** and Samek W (2025).  
“Mechanistic understanding and validation of large AI models with SemanticLens”.  
In: *CoRR abs/2501.05398*.  
*Accepted for publication in Nature Machine Intelligence*  
<https://github.com/jim-berend/semanticlens> | Demo: <https://semanticlens.hhi-research-insights.eu/umap-view>
18. Yolcu G Ü, Wiegand T, Samek W and **Lapuschkin S** (2024).  
“DualView: Data Attribution from the Dual Perspective”.  
In: *CoRR abs/2402.12118*.  
<https://github.com/gumityolcu/DualView>
19. Gerstenberger M, **Lapuschkin S**, Eisert P and Bosse S (2022).  
“But That’s Not Why: Inference Adjustment by Interactive Prototype Deselection”.  
In: *CoRR abs/2203.10087*
20. Anders C J, Neumann D, Samek W, Müller K-R and **Lapuschkin S** (2021).  
“Software for Dataset-wide XAI: From Local Explanations to Global Insights with Zennit, CoRelAy, and ViRelAy”.  
In: *CoRR abs/2106.13200*. <https://github.com/chr5tphr/zennit> |  
<https://github.com/virelay/corelay> | <https://github.com/virelay/virelay>
21. Schwenk G and **Bach S** (2014).  
“Detecting Behavioural and Structural Anomalies in Media-Cloud Applications”.  
In: *CoRR abs/1409.8035*