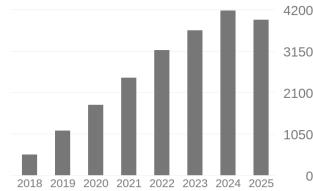

Publications

Summary of Scientific Impact

	All	Since 2020
# Publications	100	80
# Citations	21532	19327
h-index	39	38
i10-index	65	64



per Google Scholar, retrieved on December 15th, 2025.

List of Publications

Journal Articles

1. Yolcu G Ü, Weckbecker M, Wiegand T, Samek W and **Lapuschkin S** (2025). "Sparse, Efficient and Explainable Data Attribution with DualXDA". In: *Transactions on Machine Learning Research* qfx81N884A. <https://github.com/gumityolcu/DualXDA>
2. 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: *Nature Machine Intelligence* 1–14. <https://github.com/jim-berend/semanticlens | Demo: https://semanticlens.hhi-research-insights.eu>
3. 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: *Machine Learning* 114(9):206. <https://github.com/frederikpahde/medical-ai-safety>
4. Ma J, Weicken E, Pahde F, Weitz K, **Lapuschkin S**, Samek W and Wiegand T (2025). "Künstliche Intelligenz auf dem Prüfstand: Anforderungen, Qualitätskriterien und Prüfwerkzeuge für medizinische Anwendungen [Artificial intelligence under scrutiny: requirements, quality criteria, and testing tools for medical applications]". In: *Bundesgesundheitsblatt – Gesundheitsforschung – Gesundheitsschutz* 68:915–923
5. Storås A M, Dreyer M, Pahde F, **Lapuschkin S**, Samek W, Halvorsen P, de Lange T, Mori Y, Hann A, Berzin T M, Parasa S and Riegler M A (2025). "Exploring the Clinical Value of Concept-based AI Explanations in Gastrointestinal Disease Detection". In: *Scientific Reports* 15(1):28860. <https://github.com/AndreaStoraas/conceptXAI-GItract>
6. 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* 9oToxYVOSW. <https://github.com/leanderweber/layerwise-feedback-propagation>
7. 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* ukLxqA8zXj. <https://github.com/annahedstroem/GEF | TMLR Survey Certification>
8. 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>
9. 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>

10. 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>
11. Achtibat 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/rachtibat/zennit-crp> | <https://github.com/maxdreyer/crp-human-study>
12. Hedström A, Bommer P, Wickstrøm 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* j3FK00HyfU.
<https://github.com/annahedstroem/MetaQuantus>
13. 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
14. 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>
15. 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
16. Ma J, Schneider L, **Lapuschkin S**, Achtibat R, Duchrau M, Krois J, Schwendicke F and Samek W (2022). "Towards Trustworthy AI in Dentistry". In: *Journal of Dental Research* 00220345221106086
17. 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>
18. Sljepcovic 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>
19. 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
20. 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
21. 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
22. 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/seulkayeom/LRP_pruning | https://github.com/seulkayeom/LRP_Pruning_toy_example
23. 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>

24. 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
25. 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
26. 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>
27. **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
28. 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>
29. 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*
30. 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 on Neural Networks and Learning Systems*
31. 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
32. **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
33. 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. 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: *Proceedings of the IJCAI Workshops 2025: XAI Workshop* . <https://arxiv.org/abs/2506.14775>
2. 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: *Findings of the Association for Computational Linguistics (ACL)* 17138–17160. <https://github.com/brunibrun/FADE>
3. Naujoks J, Krasowski A, Weckbecker M, Yolcu G Ü, Wiegand T, **Lapuschkin S**, Samek W and Klausen R P (2025). "Leveraging Influence Functions for Resampling Data in Physics-Informed Neural Networks". In: *Proceedings of the 3rd XAI World Conference* TBA. https://github.com/aleks-krasowski/PINNfluence_resampling
4. Erogullari E, **Lapuschkin S**, Samek W and Pahde F (2025). "Post-Hoc Concept Disentanglement: From Correlated to Isolated Concept Representations". In: *Proceedings of the 3rd XAI World Conference* TBA. <https://github.com/erenerogullari/cav-disentanglement>

5. Joseph S, Suresh P, Hufe L, Stevinson E, Graham R, Vadi Y, Bzdok D, **Lapuschkin S**, Sharkey L and Richards A (2025).
“Prisma: An Open Source Toolkit for Mechanistic Interpretability in Vision and Video”.
In: *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops: MIV Workshop TBA.*
<https://arxiv.org/abs/2504.19475> | <https://github.com/Prisma-Multimodal/ViT-Prisma>
6. 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)*.
<https://github.com/frederikpahde/pattern-cav>
7. Bareeva D, Yolcu GÜ, Hedström A, Wiegand T, Samek W and **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>
8. 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
9. 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>
10. Nobis G, Springenberg M, Aversa M, Detzel M, Daems R, Murray-Smith R, Nakajima S, **Lapuschkin S**, Ermon S, Birdal T, Opper 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>
11. Mekala R R, Pahde F, Baur S, Chandrashekhar 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)* 15642:368–384. (*Green Open Access*)
12. Achtibat 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/rachtibat/LRP-for-Transformers>
13. Hatefi S M V, Dreyer M, Achtibat 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>
14. 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>
15. Tinauer C, Damulina A, Sackl M, Soellradl M, Achtibat 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*)
16. Dreyer M, Purelku 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>
17. 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
18. Dreyer M, Achtibat 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>
19. 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/rrclar>
20. 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)
21. 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
22. 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)* (vVpefYmnG)
23. 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 (MICCAI)* 596–606. (Green Open Access)
<https://github.com/maxdreyer/reveal2revise>
24. 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
25. Dreyer M, Achtibat 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
26. 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
27. 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
28. 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)*
29. 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
30. 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)

31. 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
32. 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
33. 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
34. 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*
35. 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*
36. 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*
37. 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*
38. **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
39. 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
40. **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
41. 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
42. **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
43. 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
44. 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^x: 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. Puri B, Berend J, **Lapuschkin S** and Samek W (2025).
“Atlas-Alignment: Making Interpretability Transferable Across Language Models”.
In: *CoRR abs/2510.27413*
2. Klausen R P, Timofeev I, Frank J, Naujoks J, Wiegand T, **Lapuschkin S** and Samek W (2025).
“LieSolver: A PDE-constrained solver for IBVPs using Lie symmetries”.
In: *CoRR abs/2510.25731*
3. Golimblevskaia E, Jain A, Puri B, Ibrahim A, Samek W and **Lapuschkin S** (2025).
“Circuit Insights: Towards Interpretability Beyond Activations”.
In: *CoRR abs/2510.14936*.
<https://github.com/egolimblevskaia/WeightLens> | <https://github.com/egolimblevskaia/CircuitLens>
Accepted for publication at BlackboxNLP 2025
4. Komorowski P, Golimblevskaia E, Achtibat R, Wiegand T, **Lapuschkin S** and Samek W (2025).
“Attribution-Guided Decoding”.
In: *CoRR abs/2509.26307*.
<https://github.com/piotr-komorowski/attribution-guided-decoding>
5. Panfilov A, Kortukov E, Nikolić K, Bethge M, **Lapuschkin S**, Samek W, Prabhu A, Andriushchenko M, Geiping J (2025).
“Strategic Dishonesty Can Undermine AI Safety Evaluations of Frontier LLMs”.
In: *CoRR abs/2509.18058*
6. Sandmann E, **Lapuschkin S** and Samek W (2025).
“Iterative Inference in a Chess-Playing Neural Network”.
In: *CoRR abs/2508.21380*.
<https://github.com/hartigel/leela-logit-lens>
Accepted for publication at NeurIPS 2025 Workshops
7. Hufe L, Venhoff C, Dreyer QM, **Lapuschkin S** and Samek W (2025).
“Towards Mechanistic Defenses Against Typographic Attacks in CLIP”.
In: *CoRR abs/2508.20570*
8. Hatefi S M V, Dreyer M, Achtibat 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>
9. 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. Accepted for publication at Journal of the Franklin Institute*
10. 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
11. 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>
12. Kahardipraja P, Achtibat 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>
Accepted for publication at NeurIPS 2025

13. 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: *CoRR abs/2401.06122*. https://github.com/dilyabareeva/grad_slingshot Accepted for publication at NeurIPS 2025
14. 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*
15. Arras L, Puri B, Kahardiprakash 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. 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*
17. 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> Accepted for publication at PLoS ONE
18. Schwenk G and **Bach S** (2014). "Detecting Behavioural and Structural Anomalies in Media-Cloud Applications". In: *CoRR abs/1409.8035*