

Selected Publications

- [1] D. Barco, M. Stadelmann, M. Oswald, I. Herzig, L. Lichtensteiger, P. Paysan, I. Peterlik, M. Walczak, B. Menze, and F.-P. Schilling, "Mindi-3d: Iterative deep learning in 3d for sparse-view cone beam computed tomography," *IEEE Access*, vol. 14, pp. 6438–6449, 2026. doi:10.1109/ACCESS.2026.3652627. arXiv:2508.09616
- [2] P. Denzel, Y. Billeter, F.-P. Schilling, and E. Gavagnin, "Galactic Alchemy: Deep Learning Map-to-Map Translation in Hydrodynamical Simulations," arXiv preprint 2510.23768, 2025. [Online]. Available: <https://arxiv.org/abs/2510.23768>
- [3] C. Frischknecht-Gruber, P. Denzel, M. Reif, Y. Billeter, S. Brunner, O. Forster, F.-P. Schilling, J. Weng, and R. Chavarriaga, "AI Assessment in Practice: Implementing a Certification Scheme for AI Trustworthiness," in *Symposium on Scaling AI Assessments (SAIA 2024)*, R. Görg, E. Haedecke, M. Poretschkin, and A. Schmitz, Eds., vol. 126. Dagstuhl, Germany: Schloss Dagstuhl – Leibniz-Zentrum für Informatik, 2025, pp. 15:1–15:18. doi:10.4230/OASlcs.SAIA.2024.15
- [4] P. Denzel, S. Brunner, Y. Billeter, O. Forster, C. Frischknecht-Gruber, M. Reif, F.-P. Schilling, J. Weng, R. Chavarriaga, A. Amini, , M. Repetto, and A. Iranfar, "Towards the Certification of AI-based Systems," in *SDS 2024: 11th IEEE Swiss Conference on Data Science*, 2024, pp. 84–91. doi:10.1109/SDS60720.2024.00020
- [5] Y. Billeter, P. Denzel, R. Chavarriaga, O. Forster, F.-P. Schilling, S. Brunner, C. Frischknecht-Gruber, M. Reif, and J. Weng, "MLOps as Enabler of Trustworthy AI," in *SDS 2024: 11th IEEE Swiss Conference on Data Science*, 2024, pp. 37–40. doi:10.1109/SDS60720.2024.00013
- [6] M. Amirian, D. Barco, I. Herzig, and F.-P. Schilling, "Artifact Reduction in 3D and 4D Cone-beam Computed Tomography Images with Deep Learning - A Review," *IEEE Access*, vol. 12, pp. 10 281–10 295, 2024. doi:10.1109/ACCESS.2024.3353195
- [7] M. Amirian, J. A. Montoya-Zegarra, I. Herzig, P. E. Hotz, L. Lichtensteiger, M. Morf, A. Züst, P. Paysan, I. Peterlik, S. Scheib, R. M. Fuchslin, T. Stadelmann, and F.-P. Schilling, "Mitigation of motion-induced artefacts in Cone Beam Computed Tomography using Deep Convolutional Neural Networks," *Med. Phys.*, vol. 50, no. 10, pp. 6228–6242, 2023. doi:10.1002/mp.16405
- [8] F.-P. Schilling, D. Flumini, R. M. Fuchslin, E. Gavagnin, A. Geller, S. Quarteroni, and T. Stadelmann, "Foundations of Data Science: A Comprehensive Overview Formed at the 1st International Symposium on the Science of Data Science," *Archives of Data Science, Series A*, vol. 8, no. 2, pp. 1 – 20, 2022. doi:10.5445/IR/1000146422
- [9] I. Herzig, P. Paysan, S. Scheib, F.-P. Schilling, J. Montoya, M. Amirian, T. Stadelmann, P. Eggenberger, R. M. Fuchslin, and L. Lichtensteiger, "Deep Learning-Based Simultaneous Multi-Phase Deformable Image Registration of Sparse 4D-CBCT," in *Proceedings of the American Association of Physics in Medicine Annual Meeting (AAPM 2022)*, 2022. doi:10.21256/zhaw-25181 Washington, DC, USA, July 2022.
- [10] N. Simmler, P. Sager, P. Andermatt, R. Chavarriaga, F.-P. Schilling, M. Rosenthal, and T. Stadelmann, "A survey of un-, weakly-, and semi-supervised learning methods for noisy, missing and partial labels in industrial vision applications," in *8th Swiss Conference on Data Science (SDS)*, 2021, pp. 26–31. doi:10.1109/SDS51136.2021.00012
- [11] L. Tuggener, M. Amirian, F. Benites, P. von Däniken, P. Gupta, F.-P. Schilling, and T. Stadelmann, "Design Patterns for Resource-Constrained Automated Deep-Learning Methods," *AI*, vol. 1, no. 4, pp. 510–538, 2020. doi:10.3390/ai1040031
- [12] F.-P. Schilling and T. Stadelmann, Eds., *Artificial neural networks in pattern recognition : Proceedings of the 9th IAPR TC3 workshop, ANNPR 2020, Winterthur, Switzerland, September 2-4, 2020*, vol. Lecture Notes in Computer Science, no. 12294. Springer, 2020. doi:10.1007/978-3-030-58309-5
- [13] M. Amirian, L. Tuggener, R. Chavarriaga, Y. P. Satyawan, F.-P. Schilling, F. Schwenker, and T. Stadelmann, "Two to trust: Automl for safe modelling and interpretable deep learning for robustness," *Proc. of the 1st TAILOR Workshop on Trustworthy AI at ECAI 2020*, 2020. doi:10.21256/zhaw-22061
- [14] M. Amirian, K. Rombach, L. Tuggener, F.-P. Schilling, and T. Stadelmann, "Efficient deep cnns for cross-modal automated computer vision under time and space constraints," *Proc. of ECML-PKDD 2019, Würzburg*, 2019. doi:10.21256/zhaw-18357

- [15] S. Chatrchyan *et al.*, “Measurement of the mass difference between top quark and antiquark in pp collisions at $\sqrt{s} = 8$ TeV,” *Phys. Lett. B*, vol. 770, pp. 50–71, 2017. doi:10.1016/j.physletb.2017.04.028. arXiv:1610.09551
- [16] S. Chatrchyan *et al.*, “Evidence for the direct decay of the 125 GeV Higgs boson to fermions,” *Nature Phys.*, vol. 10, p. 557, 2014. doi:10.1038/nphys3005. arXiv:1401.6527
- [17] S. Chatrchyan *et al.*, “Search for the standard model Higgs boson produced in association with a W or a Z boson and decaying to bottom quarks,” *Phys. Rev.*, vol. D89, p. 012003, 2014. doi:10.1103/PhysRevD.89.012003. arXiv:1310.3687
- [18] S. Chatrchyan *et al.*, “Observation of a new boson with mass near 125 GeV in pp collisions at $\sqrt{s} = 7$ and 8 TeV,” *JHEP*, vol. 1306, p. 081, 2013. doi:10.1007/JHEP06(2013)081. arXiv:1303.4571
- [19] S. Chatrchyan *et al.*, “Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC,” *Phys.Lett.*, vol. B716, pp. 30–61, 2012. doi:10.1016/j.physletb.2012.08.021. arXiv:1207.7235
- [20] F.-P. Schilling, “Top Quark Physics at the LHC: A Review of the First Two Years,” *Int. J. Mod. Phys.*, vol. A27, no. 17, p. 1230016, 2012. doi:10.1142/s0217751x12300165. arXiv:1206.4484
- [21] S. Chatrchyan *et al.*, “Measurement of the single-top-quark t -channel cross section in pp collisions at $\sqrt{s} = 7$ TeV,” *JHEP*, vol. 1212, p. 035, 2012. doi:10.1007/JHEP12(2012)035. arXiv:1209.4533
- [22] S. Chatrchyan *et al.*, “Inclusive and differential measurements of the $t\bar{t}$ charge asymmetry in proton-proton collisions at 7 TeV,” *Phys.Lett.*, vol. B717, pp. 129–150, 2012. doi:10.1016/j.physletb.2012.09.028. arXiv:1207.0065
- [23] S. Chatrchyan *et al.*, “Measurement of the $t\bar{t}$ Production Cross Section in pp Collisions at 7 TeV in Lepton + Jets Events Using b-quark Jet Identification,” *Phys.Rev.*, vol. D84, p. 092004, 2011. doi:10.1103/PhysRevD.84.092004. arXiv:1108.3773
- [24] S. Chatrchyan *et al.*, “Measurement of the $t\bar{t}$ production cross section and the top quark mass in the dilepton channel in pp collisions at $\sqrt{s} = 7$ TeV,” *JHEP*, vol. 07, p. 049, 2011. doi:10.1007/JHEP07(2011)049. arXiv:1105.5661
- [25] S. Chatrchyan *et al.*, “Measurement of the Top-antitop Production Cross Section in pp Collisions at $\sqrt{s} = 7$ TeV using the Kinematic Properties of Events with Leptons and Jets,” *Eur. Phys. J.*, vol. C71, p. 1721, 2011. doi:10.1140/epjc/s10052-011-1721-3. arXiv:1106.0902
- [26] V. Khachatryan *et al.*, “First Measurement of the Cross Section for Top-Quark Pair Production in Proton-Proton Collisions at $\sqrt{s} = 7$ TeV,” *Phys.Lett.*, vol. B695, pp. 424–443, 2011. doi:10.1016/j.physletb.2010.11.058. arXiv:1010.5994
- [27] F.-P. Schilling, “Top Quark Studies with the first CMS Data,” in *21st Hadron Collider Physics Symposium, Toronto, Canada*, 2010. doi:10.48550/arXiv.1010.2393. arXiv:1010.2393 arXiv:1010.2393.
- [28] F.-P. Schilling, “QCD and Top Quark Physics at the LHC,” in *4th Intl. Conference on Physics at the LHC, Split, Croatia*, vol. LHC2008, 2008, p. 047. doi:10.22323/1.055.0047. arXiv:0901.4840
- [29] R. Adolphi *et al.*, “The CMS experiment at the CERN LHC,” *JINST*, vol. 3, p. S08004, 2008. doi:10.1088/1748-0221/3/08/S08004
- [30] G. Bayatian *et al.*, “CMS technical design report, volume II: Physics performance,” *J. Phys.*, vol. G34, pp. 995–1579, 2007. doi:10.1088/0954-3899/34/6/S01
- [31] A. Aktas *et al.*, “Measurement and QCD analysis of the diffractive deep- inelastic scattering cross-section at HERA,” *Eur. Phys. J.*, vol. C48, pp. 715–748, 2006. doi:10.1140/epjc/s10052-006-0035-3. arXiv:hep-ex/0606004
- [32] F.-P. Schilling, “Diffractive final states with the H1 detector at HERA,” in *Intl. Europhysics Conference on High-Energy Physics (EPS-HEP 2003), Aachen, Germany*, vol. C33, 2004, pp. s530–s532. doi:10.1140/epjcd/s2004-03-1680-9. arXiv:hep-ex/0310016
- [33] F.-P. Schilling, “Inclusive diffraction at HERA,” in *31st Intl. Conference on High Energy Physics (ICHEP 2002), Amsterdam, The Netherlands*, vol. 117, 2003, pp. 403–407. doi:10.1016/S0920-5632(03)90578-0. arXiv:hep-ex/0210027
- [34] C. Adloff *et al.*, “Diffractive jet production in deep inelastic e^+p collisions at HERA,” *Eur. Phys. J.*, vol. C20, pp. 29–49, 2001. doi:10.1007/s100520100634. arXiv:hep-ex/0012051