

# Machine Learning for Proofs Bibliography

The Public

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## Refereed Conference & Journal Papers

- [1] Alexander A. Alemi, François Chollet, Niklas Eén, Geoffrey Irving, Christian Szegedy, and Josef Urban. Deepmath - deep sequence models for premise selection. In Daniel D. Lee, Masashi Sugiyama, Ulrike von Luxburg, Isabelle Guyon, and Roman Garnett, editors, *Advances in Neural Information Processing Systems 29: Annual Conference on Neural Information Processing Systems 2016, December 5-10, 2016, Barcelona, Spain*, pages 2235–2243, 2016. <http://papers.nips.cc/paper/6280-deepmath-deep-sequence-models-for-premise-selection>.
- [2] Emily First and Yuriy Brun. Diversity-driven automated formal verification. In *2022 IEEE/ACM 44th International Conference on Software Engineering (ICSE)*, pages 01–13, 2022. <https://people.cs.umass.edu/~brun/pubs/pubs/First22icse.pdf>.
- [3] Emily First, Yuriy Brun, and Arjun Guha. Tactok: Semantics-aware proof synthesis. *Proc. ACM Program. Lang.*, 4(OOPSLA), nov 2020. <https://doi.org/10.1145/3428299>.
- [4] Thibault Gauthier, Cezary Kaliszyk, and Josef Urban. TacticToe: Learning to reason with HOL4 tactics. In Thomas Eiter and David Sands, editors, *LPAR-21, 21st International Conference on Logic for Programming, Artificial Intelligence and Reasoning, Maun, Botswana, May 7-12, 2017*, volume 46 of *EPiC Series in Computing*, pages 125–143. EasyChair, 2017. <https://easychair.org/publications/volume/LPAR-21>.
- [5] Daniel Huang, Prafulla Dhariwal, Dawn Song, and Ilya Sutskever. Gamepad: A learning environment for theorem proving. In *International Conference on Learning Representations*, 2019. <https://openreview.net/forum?id=r1xwKoR9Y7>.
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- [7] Cezary Kaliszyk and Josef Urban. Learning-assisted automated reasoning with flyspeck. *Journal of Automated Reasoning*, 53(2):173–213, 2014. <https://doi.org/10.1007/s10817-014-9303-3>.
  - [8] Daniel Kühlwein, Jasmin Christian Blanchette, Cezary Kaliszyk, and Josef Urban. Mash: machine learning for sledgehammer. In *International Conference on Interactive Theorem Proving*, pages 35–50. Springer, 2013. <https://www21.in.tum.de/~blanchet/mash.pdf>.
  - [9] Sarah Loos, Geoffrey Irving, Christian Szegedy, and Cezary Kaliszyk. Deep network guided proof search. In Thomas Eiter and David Sands, editors, *LPAR-21, 21st International Conference on Logic for Programming, Artificial Intelligence and Reasoning, Maun, Botswana, May 7-12, 2017*, volume 46 of *EPiC Series in Computing*, pages 85–105. EasyChair, 2017. <https://easychair.org/publications/volume/LPAR-21>.
  - [10] Markus Norman Rabe, Dennis Lee, Kshitij Bansal, and Christian Szegedy. Mathematical reasoning via self-supervised skip-tree training. In *International Conference on Learning Representations*, 2020. <https://arxiv.org/abs/2006.04757>.
  - [11] Yuhuai Wu, Markus Norman Rabe, DeLesley Hutchins, and Christian Szegedy. Memorizing transformers. In *International Conference on Learning Representations*, 2022. <https://openreview.net/forum?id=TrjbxzRcnf->.
  - [12] Kaiyu Yang and Jia Deng. Learning to prove theorems via interacting with proof assistants. In *International Conference on Machine Learning (ICML)*, 2019. <https://arxiv.org/abs/1905.09381>.

## Workshop Papers

- [13] Alex Sanchez-Stern, Yousef Alhessi, Lawrence Saul, and Sorin Lerner. Generating correctness proofs with neural networks. In *Proceedings of the 4th ACM SIGPLAN International Workshop on Machine Learning and Programming Languages*, MAPL 2020, page 1–10, New York, NY, USA, 2020. Association for Computing Machinery. <https://doi.org/10.1145/3394450.3397466>.

## arXiv Papers

- [14] Stanislas Polu and Ilya Sutskever. Generative language modeling for automated theorem proving. *arXiv preprint arXiv:2009.03393*, 2020. <https://doi.org/10.48550/arXiv.2009.03393>.