1172-58-256 **Andre Lukas*** (andre.lukas@physics.ox.ac.uk), Peierls Centre for Theoretical Physics, University of Oxford, Parks Road, Oxford, OX1 3PU, United Kingdom. *Reinforcement Learning and String Theory Geometry.*

I will describe recent work which applies reinforcement learning to the problem of engineering geometries in the context of string theory. After a brief review, I will start with a toy model which involves the index of line bundles to show that reinforcement systems can be used to construct geometries with prescribed topological properties. Reinforcement learning is then used to explore the set of monad bundles on Calabi-Yau manifolds, in the context of heterotic string models. It turns out that reinforcement systems can learn properties of these models efficiently and are capable of finding new string standard models. (Received August 30, 2021)