

Machine Learning in Automated and Interactive Theorem Proving

Josef Urban

Czech Technical University in Prague, Czech Republic

Abstract

The talk will discuss the main methods that combine machine learning with automated and interactive theorem proving. This includes learning-based guidance of saturation-style and tableau-style automated theorem provers (ATPs), guiding tactical interactive theorem provers (ITPs) and using machine learning for selecting of relevant facts from large ITP libraries in the “hammer” linkups of ITPs with ATPs. I will also mention several feedback loops between proving and learning in this setting, and discuss some connections to SAT and related areas.