FACULTY MENTOR
Lin, Bill

PROJECT TITLE
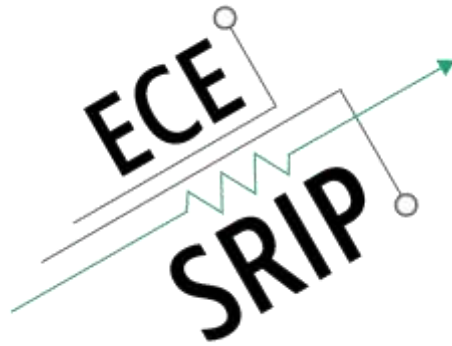Solving engineering problems with AlphaZero

PROJECT DESCRIPTION
Recently, AlphaZero (developed by Google's DeepMind) has received considerable attention due its ability to outperform the best players in both the games of Go and Chess. The general framework is "game agnostic" in the sense it can be used to solve any problem that can be modeled as a two-player game. In this project, we will explore the application of AlphaZero to engineering problems that may not at first glance appear to be two-player games. The goal is to see if they can be formulated in a way such that the AlphaZero technology can be applied.

INTERNS NEEDED
2 MS/ BS Students

PREREQUISITES
Preferably candidates who have taken a machine learning or computer vision course; good programming skills (Python, C, C++, and/or Java); algorithms course also helpful.

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PROJECT TITLE
Solving engineering problems with SAT and SMT solvers

PROJECT DESCRIPTION
Boolean SAT (Satisfiability) and SMT (Satisfiability-Modulo-Theory) solvers have advanced dramatically in recent years. SAT and SMT solvers are capable of identifying feasible solutions to complex decision problems where the constraints can be expressed as Boolean constraints (for SAT solvers) or a combination of Boolean and numerical constraints (for SMT solvers). In this project, we will explore the application of SAT and SMT solvers to engineering problems where there are no known conventional algorithmic solutions.

INTERNS NEEDED
2 MS/BS Students

PREREQUISITES
Preferably candidates who have taken a machine learning or computer vision course; good programming skills (Python, C, C++, and/or Java); algorithms course also helpful.