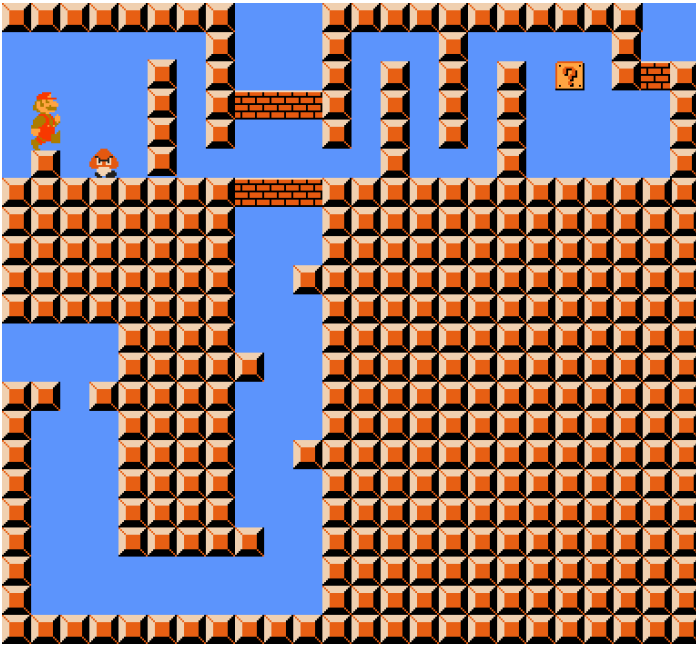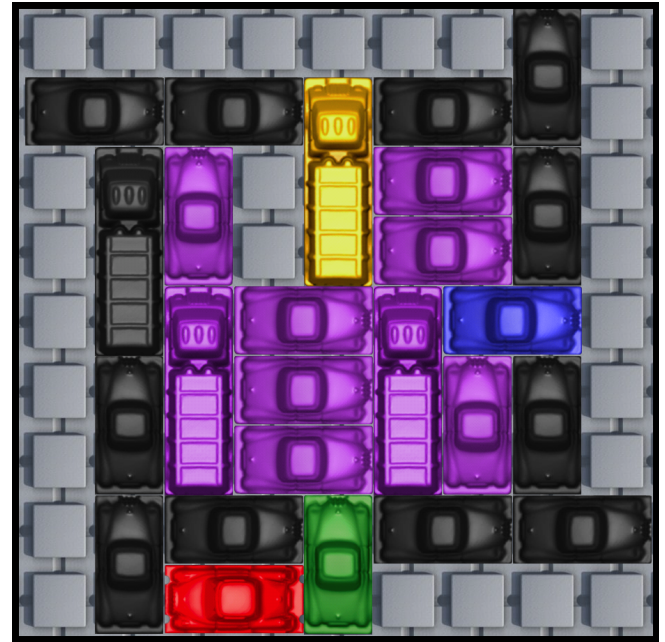# Algorithmic Lower Bounds: Fun with Hardness Proofs

Super Mario Bros.

Crossover gadget for NP-hardness

Rush Hour

AND gadget for PSPACE-hardness
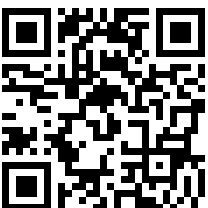
Minesweeper

OR gadget for NP-hardness

Hardness Made Easy*

Learn **when to give up** the search for efficient algorithms; see **connections** between computational problems; **solve puzzles** to prove theorems, solve **open problems,** and write papers.

Topics: NP, PSPACE, EXPTIME, EXPSPACE, 3SUM, approximation, fixed parameter, games & puzzles, key problems, gadgets, and proof styles.

Spring 2019

6.892 taught by Professor Erik Demaine
II, AAGS, and Theoretical CS Concentration
Wednesday 7:00-9:30pm in room 32-082

http://courses.csail.mit.edu/6.892/spring19/
sign up for our mailing list to join the class

* Easiness not guaranteed. Side effects such as open problems and a heightened sense of complexity may occur. Ask your advisor if 6.892 is right for you!