

问题求解 (四) 书籍与公开课推荐

魏恒峰

hfwei@nju.edu.cn

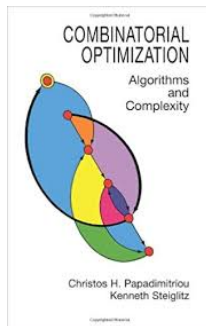
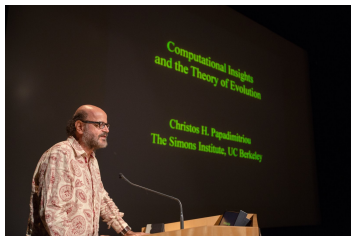
2019 年 07 月 24 日



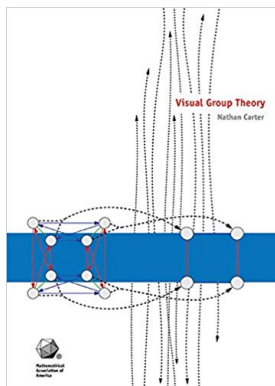
读书时，是别人在代替我们思想，我们只不过重复他的思想活动的过程而已。

有许多学者就是这样，因读书太多而变得愚蠢。

— 叔本华

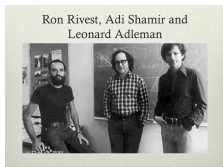
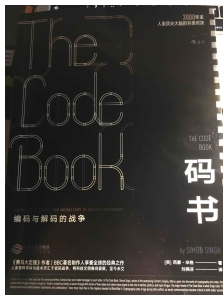


“线性规划/整数规划”视角下的组合优化问题与算法
阅读难度颇大，但提供了更深刻的理解



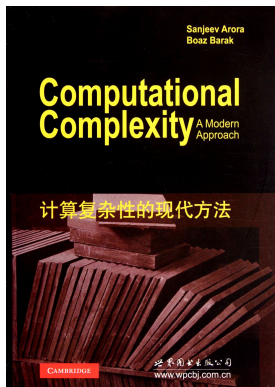
“看得见的”群论, 生动有趣的 Cayley Diagrams

配合教学视频 @ Youtube 食用, 口味更佳



了解背后的人物与故事, 与了解理论本身同样重要

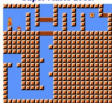
The Science of Secrecy from Ancient Egypt to Quantum Cryptography @
Youtube



更多关于计算复杂度的理论

ALGORITHMIC LOWER BOUNDS: FUN WITH HARDNESS PROOFS

Super Mario Bros.



Customized gadgets for NP-hardness

Minesweeper

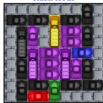


OR gadget for NP-hardness



6.892 taught by Professor Erik Demaine
8.400S, and Theoretical CS Concentration
Wednesday 7:30-9:30pm in room 32-462
<http://courses.csail.mit.edu/6.892/spring19/>
sign up for our mailing list to join the class

Rush Hour



MIT gadgets for PSPACE-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, DEXPTIME, PTIME, approximation, fixed parameters, games & puzzles, key problems, gadgets, and proof styles.

Spring 2019

* Evidence not guaranteed. Side effects such as open problems and a heightened sense of complexity may ensue. All new subjects of 6.892 in sight for you!



TIME TRAVEL



DYNAMIC GRAPHS



SUCCINCT



DYNAMIC OPTIMALITY



GEOMETRY



INTEGERS



MEMORY HIERARCHY



HASHING



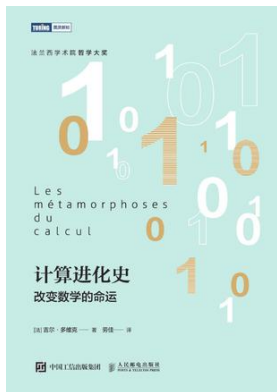
STRINGS

紫荆: MIT 6.892 Algorithmic Lower Bounds
(<http://zijingbt.njuftp.org/stats.html?id=111446>)

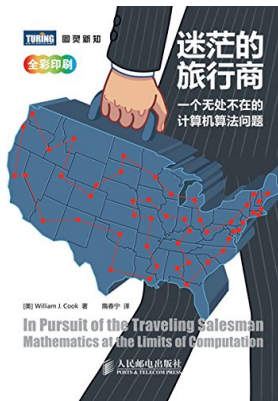
紫荆: MIT 6.851 Advanced Data Structures
(<http://zijingbt.njuftp.org/stats.html?id=111445>)



关于 P, NP 的科普读物

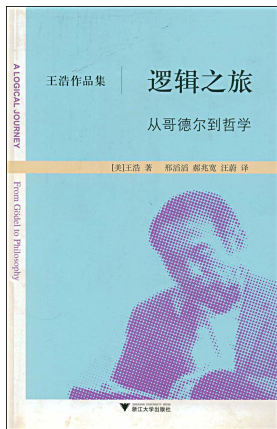


“逻辑”与“计算”的发展史;“计算”与“证明”的关系



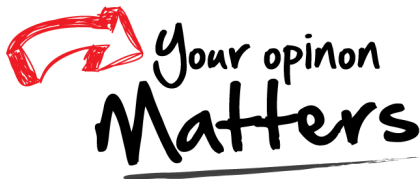
以“旅行商问题”为主线, 介绍计算复杂度、线性规划、启发式算法等

The Traveling Salesman Problem (William J. Cook) @ Youtube



不求甚解; 偶有所悟

为了更好地教学, 希望能得到你的反馈、批评、意见或建议。



Office 302

Mailbox: H016 (计算机系楼二楼)

hfwei@nju.edu.cn

Thank
You!