Invitation to Fixed-Parameter Algorithms

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Oxford University Press (2006)

Abstract

A fixed-parameter is an algorithm that provides an optimal solution to a combinatorial problem. This research-level text is an application-oriented introduction to the growing and highly topical area of the development and analysis of efficient fixed-parameter algorithms for hard problems. The book is divided into three parts: a broad introduction that provides the general philosophy and motivation; followed by coverage of algorithmic methods developed over the years in fixed-parameter algorithmics forming the core of the book; and a discussion of the essential from parameterized hardness theory with a focus on W [1]-hardness, which parallels NP-hardness, then stating some relations to polynomial-time approximation algorithms, and finishing up with a list of selected case studies to show the wide range of applicability of the presented methodology. Aimed at graduate and research mathematicians, programmers, algorithm designers and computer scientists, the book introduces the basic techniques and results and provides a fresh view on this highly innovative field of algorithmic research.

Keywords

Algorithms   Combinatorial analysis   Parameter estimation

Categories

Logic and Philosophy of Logic
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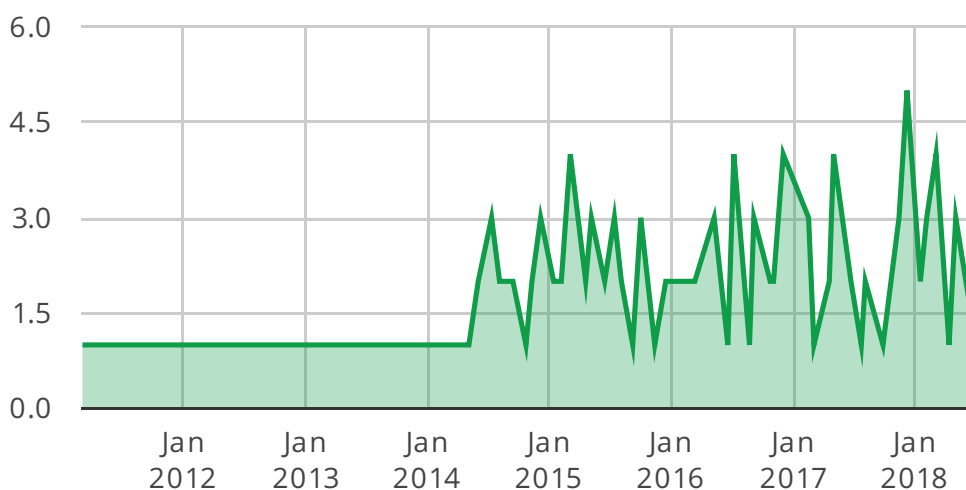**Added to PP index**
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