



TABLE OF CONTENTS

●	Description	p.1
●	Audience	p.2
●	Impact Factor	p.2
●	Abstracting and Indexing	p.2
●	Editorial Board	p.2
●	Guide for Authors	p.5



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DESCRIPTION

Theoretical Computer Science is mathematical and abstract in spirit, but it derives its motivation from practical and everyday computation. Its aim is to understand the nature of **computation** and, as a consequence of this understanding, provide more efficient methodologies. All papers introducing or studying mathematical, logic and formal concepts and methods are welcome, provided that their motivation is clearly drawn from the field of **computing**.

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Papers published in *Theoretical Computer Science* are grouped in three sections according to their nature. The first section 'Algorithms, automata, complexity and games' is devoted to the study of **algorithms** and their complexity using analytical, combinatorial or probabilistic methods. It includes the whole field of **abstract complexity** (i.e. all the results about the hierarchies that can be defined using Turing machines), the whole field of automata and language theory (including automata on infinite words and infinitary languages), the whole field of geometrical (graphic) applications and the whole field of measurement of system performance using statistical methods.

The second section, 'Logic, semantics and theory of programming', is devoted to formal methods to check properties of programs or implement formally described languages; it contains all papers dealing with semantics of sequential and parallel **programming languages**. All formal methods treating these problems are published in this section, including rewriting techniques, abstract data types, automatic theorem proving, calculi such as SCP or CCS, Petri nets, new logic calculi and developments in categorical methods.

The third section, 'Natural Computing', is devoted to the study of computing occurring in **nature** and computing inspired by nature. In the rapidly evolving field of **computer science**, **natural computing** plays an important role as the catalyst for the synergy of human designed computing with the computing going on in nature. This synergy leads to a deeper and broader understanding of the nature of computation. Although natural computing is concerned also with experiments and applications, this section of *Theoretical Computer Science* is focused on the theoretical aspects of natural computing with clear relevance to computing. Among others, it will contain papers dealing with the theoretical issues in evolutionary computing, neural networks, molecular computing, and quantum computing.

AUDIENCE

Researchers in the Theoretical Aspects of Computer Science.

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Introduction

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The Editor-in-Chief first screens all manuscripts. It is possible but almost unprecedented for an exceptional manuscript to be accepted at this stage. Those rejected at this stage are insufficiently original, have serious scientific flaws, have poor grammar or English language, or are outside the aims and scope of the journal.

Those that meet the minimum criteria are passed on to a Handling Editor who is a member of the Editorial Board with expertise in the subject area of the submission, where the screening process repeats. Those that pass this stage are passed on to at least two experts for review.

Authors of manuscripts rejected without refereeing may be informed within a few weeks of receipt.

In rare cases it may be impossible to find qualified experts who are prepared to review a submission. An unsuccessful search may take weeks or months. Such a manuscript will be rejected and the author informed of the situation. In cases where the problem is solely with the presentation - for example, where the manuscript would be very time-consuming to review because of extreme length - the author may wish to submit a revised version.

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Referee reports

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- Is original and of sufficient weight and interest
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- Fits the scope of *Theoretical Computer Science*
- Is clearly presented, including linguistic quality
- Correctly references previous relevant work

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Manuscripts are typically reviewed within 4-5 months. Unusually long or difficult manuscripts may take longer. The time required will also be greater in cases where it is difficult to find suitably qualified referees. Should a report be unreasonably delayed, a further expert opinion may be sought. If the referees' reports contradict one another, the Handling Editor may obtain additional reviews if this is required to make a decision. Revised manuscripts are usually reviewed by the referees of the original submission, but the Handling Editor may seek input from additional reviewers.

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Results should be clear and concise.

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This should explore the significance of the results of the work, not repeat them. A combined Results and Discussion section is often appropriate. Avoid extensive citations and discussion of published literature.

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