# Introduction to Bisimulation and Coinduction

*By Davide Sangiorgi*

**Introduction to Bisimulation and Coinduction** By Davide Sangiorgi

Induction is a pervasive tool in computer science and mathematics for defining objects and reasoning on them. Coinduction is the dual of induction and as such it brings in quite different tools. Today, it is widely used in computer science, but also in other fields, including artificial intelligence, cognitive science, mathematics, modal logics, philosophy and physics. The best known instance of coinduction is bisimulation, mainly employed to define and prove equalities among potentially infinite objects: processes, streams, non-well-founded sets, etc. This book presents bisimulation and coinduction: the fundamental concepts and techniques and the duality with induction. Each chapter contains exercises and selected solutions, enabling students to connect theory with practice. A special emphasis is placed on bisimulation as a behavioural equivalence for processes. Thus the book serves as an introduction to models for expressing processes (such as process calculi) and to the associated techniques of operational and algebraic analysis.

# Introduction to Bisimulation and Coinduction

*By Davide Sangiorgi*

**Introduction to Bisimulation and Coinduction** By Davide Sangiorgi

Induction is a pervasive tool in computer science and mathematics for defining objects and reasoning on them. Coinduction is the dual of induction and as such it brings in quite different tools. Today, it is widely used in computer science, but also in other fields, including artificial intelligence, cognitive science, mathematics, modal logics, philosophy and physics. The best known instance of coinduction is bisimulation, mainly employed to define and prove equalities among potentially infinite objects: processes, streams, non-well-founded sets, etc. This book presents bisimulation and coinduction: the fundamental concepts and techniques and the duality with induction. Each chapter contains exercises and selected solutions, enabling students to connect theory with practice. A special emphasis is placed on bisimulation as a behavioural equivalence for processes. Thus the book serves as an introduction to models for expressing processes (such as process calculi) and to the associated techniques of operational and algebraic analysis.

**Introduction to Bisimulation and Coinduction By Davide Sangiorgi Bibliography**

- Sales Rank: #3862442 in Books
- Published on: 2011-11-28
- Original language: English
- Number of items: 1
- Dimensions: 9.72" h x .71" w x 6.85" l, 1.38 pounds
- Binding: Hardcover
- 260 pages

⬇ **Download** Introduction to Bisimulation and Coinduction ...pdf

▤ **Read Online** Introduction to Bisimulation and Coinduction ...pdf

**Download and Read Free Online Introduction to Bisimulation and Coinduction By Davide Sangiorgi**

---

## Editorial Review

Review
"A beautiful textbook on bisimulation and coinduction, some of the most influential and powerful recent concepts in computer science. The volume contains a comprehensive introduction presented in an impressive pedagogical style providing the reader with a pleasant blend of the theory behind the concepts and how to apply them. Furthermore, the book is full of illustrative examples and exercises - a book readily usable for teaching!"
Prof. Mogens Nielsen, Aarhus University

"Coinduction is essential to the foundations of computer science. Sangiorgi's new book provides a comprehensive and accessible account, including an illuminating exposition of the duality with the more well known concept of induction. The application to the theory of processes, in the form of bisimulation equivalence, is emphasised, although other approaches to process equivalence are also explained. Written in a clear and stimulating manner, it is destined to become the definitive textbook for many years to come."
Prof. Matthew Hennessy, Trinity College Dublin

"This book is an excellent text introducing bisimulation and coinduction, two subjects that are becoming more and more important in contemporary computer science. I strongly recommend it to any graduate student in computer science or related fields."
Prof. Jos Baaeten, Eindhoven University of Technology

"Bisimulation and related coinductive techniques are now standard tools in many areas of computer science, but the lack of an accessible, comprehensive introduction has made it difficult for newcomers to appreciate their elegance and power. Here, at last, is that introduction -- written by a world authority, weaving a multitude of previously disparate topics into a coherent narrative, and generously leavened with insightful exercises."
Prof. Benjamin C. Pierce, University of Pennsylvania

"In conclusion, this book provides quite a nice introduction to the technicalities around bisimulation, especially if complemented by any of the classical works on semantics of process algebras where bisimulation is used."  - David de Frutos Escrig, Mathematical Reviews

About the Author
Davide Sangiorgi is Full Professor in Computer Science at the University of Bologna, Italy.

## Users Review

**From reader reviews:**

**Carol Hughes:**

Do you one among people who can't read enjoyable if the sentence chained inside the straightway, hold on guys this specific aren't like that. This Introduction to Bisimulation and Coinduction book is readable by means of you who hate the perfect word style. You will find the facts here are arrange for enjoyable studying experience without leaving also decrease the knowledge that want to supply to you. The writer regarding Introduction to Bisimulation and Coinduction content conveys prospect easily to understand by many people.

The printed and e-book are not different in the information but it just different as it. So , do you nonetheless thinking Introduction to Bisimulation and Coinduction is not loveable to be your top list reading book?

**Martin Phair:**

Information is provisions for folks to get better life, information presently can get by anyone from everywhere. The information can be a know-how or any news even an issue. What people must be consider whenever those information which is inside the former life are challenging be find than now's taking seriously which one is appropriate to believe or which one the particular resource are convinced. If you get the unstable resource then you obtain it as your main information we will see huge disadvantage for you. All those possibilities will not happen within you if you take Introduction to Bisimulation and Coinduction as the daily resource information.

**James Donovan:**

Reading a reserve tends to be new life style within this era globalization. With studying you can get a lot of information that may give you benefit in your life. Using book everyone in this world can share their idea. Publications can also inspire a lot of people. Lots of author can inspire all their reader with their story or perhaps their experience. Not only the storyline that share in the guides. But also they write about the information about something that you need example. How to get the good score toefl, or how to teach your children, there are many kinds of book that exist now. The authors on this planet always try to improve their proficiency in writing, they also doing some study before they write with their book. One of them is this Introduction to Bisimulation and Coinduction.

**Michael Trumbo:**

As we know that book is very important thing to add our information for everything. By a e-book we can know everything we want. A book is a pair of written, printed, illustrated or even blank sheet. Every year was exactly added. This reserve Introduction to Bisimulation and Coinduction was filled with regards to science. Spend your free time to add your knowledge about your technology competence. Some people has distinct feel when they reading any book. If you know how big benefit from a book, you can truly feel enjoy to read a book. In the modern era like currently, many ways to get book that you wanted.

# Download and Read Online Introduction to Bisimulation and Coinduction By Davide Sangiorgi #26GEUK3YHQO

# Read Introduction to Bisimulation and Coinduction By Davide Sangiorgi for online ebook

Introduction to Bisimulation and Coinduction By Davide Sangiorgi Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Introduction to Bisimulation and Coinduction By Davide Sangiorgi books to read online.

## Online Introduction to Bisimulation and Coinduction By Davide Sangiorgi ebook PDF download

### Introduction to Bisimulation and Coinduction By Davide Sangiorgi Doc

**Introduction to Bisimulation and Coinduction By Davide Sangiorgi Mobipocket**

**Introduction to Bisimulation and Coinduction By Davide Sangiorgi EPub**

**26GEUK3YHQO: Introduction to Bisimulation and Coinduction By Davide Sangiorgi**