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## Book Review

**Reactive Systems: Modelling, Specification and Verification.** Luca Aceto, Anna Ingólfssdóttir, Kim Guldstrand Larsen, Jiri Srba. Cambridge University Press (2007). ISBN-13: 9780521875462

This is a good textbook from 4 well-known researchers in the concurrency area. It is meant for an advanced undergraduate or elementary graduate course on reactive systems (alternatively called parallel or distributed systems). It treats some well-known formal methods used for modeling, specifying and verifying such systems, and discusses how to use tools underlying these methods.

It discusses a basic process algebra (CCS), transition systems and bisimulation, a basic logic (HML) and model checking, and in the second half of the book extends all of these notions with explicit timing. As such, it is fitting for beginners in the area of verification, and for an obligatory course in any computer science curriculum. Students passing the course will have gotten a general idea what formal methods are about.

It pays a lot of attention to didactics, and has good exercises. A teacher using this book can just follow the material as it is presented, it is at the right level of depth, and the exercises and examples are nice and well elaborated. Sometimes, for the more difficult exercises there is a disbalance, i.e. it is not completely clear where they come from, whether there is a didactical reason for their place in the book.

The authors have wanted to stick to the original theories, as they were originally presented by Milner, Hennessy and others. A consequence of this is e.g. that the notion of a final state in a transition system is missing, so that the connection to automata theory becomes less clear. Sections 3.6 and 6.8 look more like a research overview, and do not fit in this textbook. Still, these will be of use to researchers starting in the field (but will quickly become outdated).

The book could improve with some polishing. To me, it is visible where a change of authors occurs, notation is not really unified all over the book, not all the examples are meaningful enough and the parts are not completely balanced. To give an example, Section 3.2 starts with an introduction to labeled transition systems, that has already occurred in Section 2.2.1. As another example, there is already an extensive list of errata (see <http://www.cs.aau.dk/rsbook/index.php/Errata>).

Besides these small misgivings, I think this is an excellent book, and I can recommend it for teaching at any University.

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