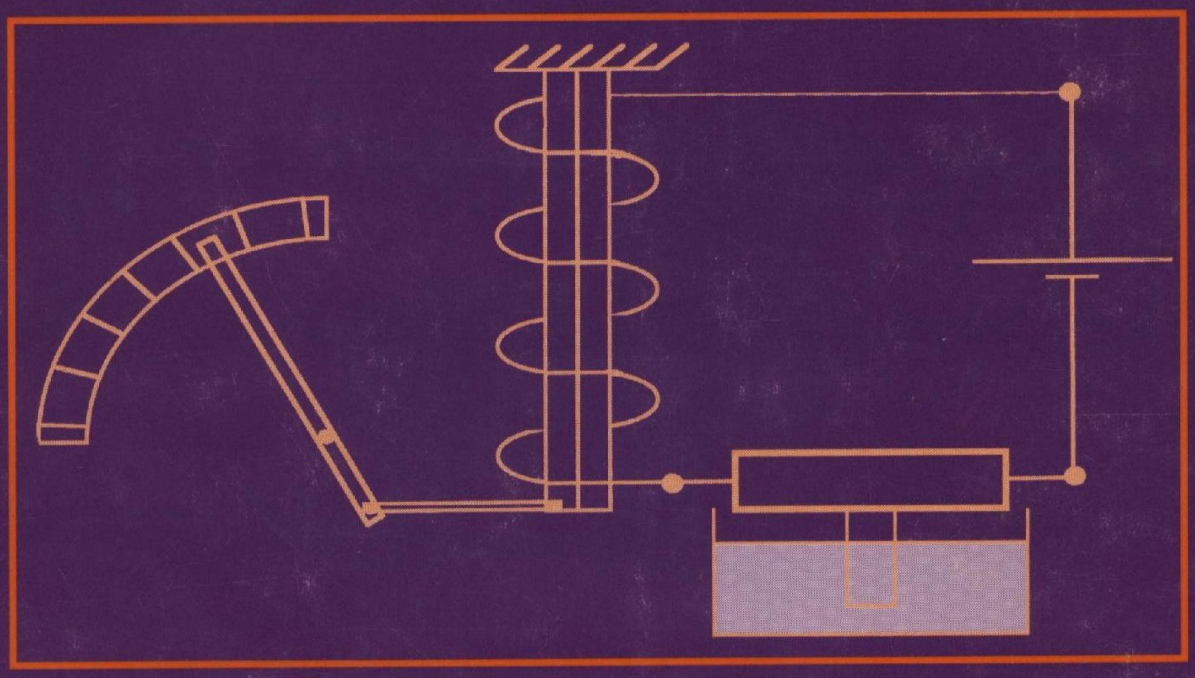
P. Pandurang Nayak

Automated Modeling of Physical Systems



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Automated Modeling of Physical Systems

This book is based on the author's Ph.D. thesis which was selected during the 1993 ACM Doctoral Dissertation Competition as one of the three best works submitted. Pandurang Nayak did his Ph.D. work at Stanford University with Professor Edward A. Feigenbaum as thesis advisor.

In this monograph the author investigates the problem of selecting adequate models for reasoning about physical systems and applications to engineering problem solving. An elegant treatment of both the theoretical and practical aspects is presented: the problem is precisely formalized, its computational complexity is analyzed in detail, and an efficient algorithm for finding adequate models is derived; on the practical side, a methodology for building systems that automatically construct adequate models is provided, and implementational aspects and tests are described.

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