



Special Issue Reprint

Advanced Mathematics and Computational Applications in Control Systems Engineering

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Control system engineering is a multidisciplinary discipline that applies automatic control theory to design systems with desired behaviors in control environments. Automatic control theory has played a vital role in the advancement of engineering and science. It has become an essential and integral part of modern industrial and manufacturing processes. Today, the requirements for control precision have increased, and real systems have become more complex.

In control engineering and all other engineering disciplines, the impact of advanced mathematical and computational methods is rapidly increasing. Advanced mathematical methods are needed because real-world control systems need to comply with several conditions related to product quality and safety constraints that have to be taken into account in the problem formulation. Conversely, the increment in mathematical complexity has an impact on the computational aspects related to numerical simulation and practical implementation of the algorithms, where a balance must also be maintained between implementation costs and the performance of the control system.

This book is a comprehensive set of articles reflecting recent advances in developing and applying advanced mathematics and computational applications in control system engineering.



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