Adaptive control theory has developed significantly over the past few years; self-tuning control represents one branch of adaptive control that has been successfully applied in practice. Controller design requires knowledge of the plant to be controlled which is not always readily accessible; self-tuning controllers gather such information during normal operation and adjust controller designs on-line as required.

Digital Self-tuning Controllers presents you with a complete course in self-tuning control, beginning with a survey of adaptive control and the formulation of adaptive control problems. Modelling and identification are dealt with before passing on to algebraic design methods and particular PID and linear-quadratic forms of self-tuning control. Finally, laboratory verification and experimentation will show you how to ground your theoretical knowledge in real plant control.

Features:

- comprehensive coverage providing everything a student needs to know about self-tuning control from literature survey to the control of an experimental heat exchanger;
- a strong emphasis on practical problem solving with control algorithms clearly laid out in easy-to-follow formulae or made directly available as MATLAB® functions making the book particularly suitable as an aid to project work;
- specially written MATLAB® toolboxes convenient for the presentation of typical control system and plant properties and ready for use in direct control of real or simulated plants available from springeronline.com;
- worked examples and tutorial exercises to guide you through the learning process.

Digital Self-tuning Controllers comprises an invaluable course with which graduate students and advanced undergraduates can learn how to overcome the significant problems of putting the powerful tools of adaptive control theory into practice. The text will also be of much interest to control engineers wishing to employ the ideas of adaptive control in their designs and plant.

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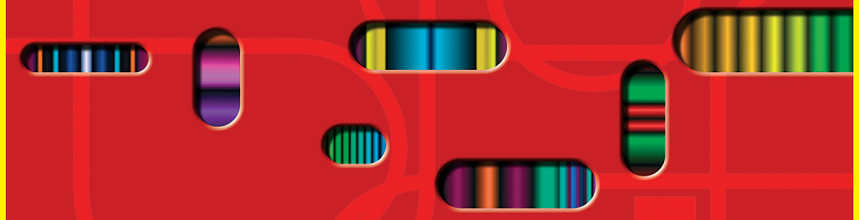

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