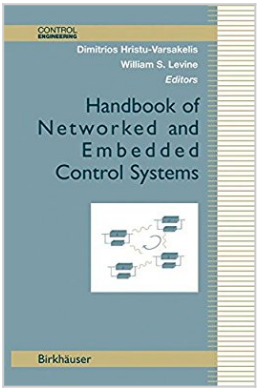

Handbook of Networked and Embedded Control Systems (Control Engineering)

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The vast majority of control systems built today are embedded; that is, they rely on built-in, special-purpose digital computers to close their feedback loops. Embedded systems are common in aircraft, factories, chemical processing plants, and even in cars–a single high-end automobile may contain over eighty different computers. The design of embedded controllers and of the intricate, automated communication networks that support them raises many new questions?practical, as well as theoretical?about network protocols, compatibility of operating systems, and ways to maximize the effectiveness of the embedded hardware.

This handbook, the first of its kind, provides engineers, computer scientists, mathematicians, and students a broad, comprehensive source of information and technology to address many questions and aspects of embedded and networked control. Separated into six main sections?*Fundamentals, Hardware, Software, Theory, Networking, and Applications*?this work unifies into a single reference many scattered articles, websites, and specification sheets. Also included are case studies, experiments, and examples that give a multifaceted view of the subject, encompassing computation and communication considerations.

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Editorial Review

Review

"Each of this handbook's 35 chapters is an independent article written by one or more authors. The editors gathered these articles and arranged them in six topical groups. Although the self-contained articles vary somewhat in format, most begin with an overview of their contents, conclude with a summary, and provide an extensive reference list. There is greater variety in content, ranging from theoretical to practical. Several articles feature illustrative case studies. The six article groupings are "Fundamentals," "Hardware," "Software," "Theory," "Networking," and "Applications." As these headings imply, the articles cover a broad spectrum of state-of-the-art embedded control systems, related networking, and tools-of-the-trade topics. Though primarily a resource book intended for control system researchers and practitioners, it can serve as a course resource or supplemental reading for an upper-level undergraduate- or master's-level control systems course. Summing Up: Recommended. Upper-division undergraduates through professionals." **?Choice**

"The Handbook provides engineers, computer scientists, mathematicians, and students a broad, comprehensive source of information and technology to address many questions and aspects of embedded and networked control. A carefully organized collection of important results, tools, software, and technology, this work unifies into a single reference many scattered articles, websites, and specification sheets?information that might otherwise be difficult to find." **?Zentralblatt MATH**

From the Back Cover

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The *Handbook of Networked and Embedded Control Systems*, the first of its kind, provides engineers, computer scientists, mathematicians, and students a broad, comprehensive source of information and technology to address many questions and aspects of embedded and networked control. A carefully organized collection of important results, tools, software, and technology, this work unifies into a single reference many scattered articles, websites, and specification sheets?information that might otherwise be difficult to find.

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* Case studies, experiments, and examples that provide a multifaceted view of the subject, encompassing computation and communication considerations

* Information about commercially available tools and hardware

* Comprehensive bibliographies and index

This is an indispensable text for anyone interested in knowing more about embedded and networked control systems. Researchers will appreciate the handbook’s up-to-date results in the theory of embedded control; developers and users will value its information on special-purpose computer hardware and operating systems modifications that support real-time control; students will find the systematic organization and wide coverage useful for learning and reference.

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