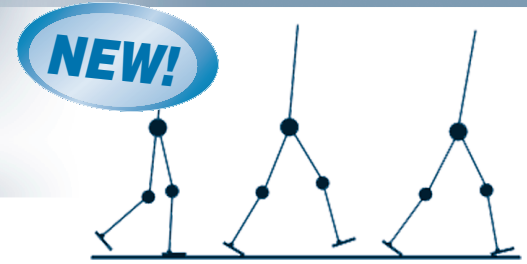


# Feedback Control of Dynamic Bipedal Robot Locomotion

Explore Walking Robots from a Truly Dynamic Perspective



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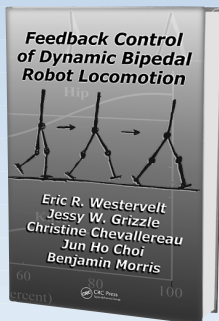
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and **Shuzhi Sam Ge**  
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Bipedal locomotion is among the most difficult challenges in control engineering. Most books treat the subject from a quasi-static perspective, overlooking the hybrid nature of bipedal mechanics. **Feedback Control of Dynamic Bipedal Robot Locomotion** is the first book to present a comprehensive and mathematically sound treatment of feedback design for achieving stable, agile, and efficient locomotion in bipedal robots.

In this unique and groundbreaking treatise, expert authors lead you systematically through every step of the process, including:

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- Analysis of periodic orbits in hybrid systems
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- Algorithms for synthesizing feedback controllers
- Detailed simulation examples
- Experimental implementations on two bipedal test beds

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- Covers the gamut of topics in bipedal robot locomotion, from models to theoretical control analysis, feedback synthesis, detailed simulations, and experimental implementations
- Includes a “Getting Started” appendix that helps you quickly begin using the concepts developed in the book
- Provides an extensive chapter devoted to background material, making the book largely self-contained
- Presents an unparalleled in-depth theoretical analysis of stable bipedal locomotion
- Contains more than 150 figures along with examples ranging from simple to complex

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