



# Feedback Control for Computer Systems: Introducing Control Theory to Enterprise Programmers

By Philipp K. Janert

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## Feedback Control for Computer Systems: Introducing Control Theory to Enterprise Programmers By Philipp K. Janert

How can you take advantage of feedback control for enterprise programming? With this book, author Philipp K. Janert demonstrates how the same principles that govern cruise control in your car also apply to data center management and other enterprise systems. Through case studies and hands-on simulations, you'll learn methods to solve several control issues, including mechanisms to spin up more servers automatically when web traffic spikes.

Feedback is ideal for controlling large, complex systems, but its use in software engineering raises unique issues. This book provides basic theory and lots of practical advice for programmers with no previous background in feedback control.

- Learn feedback concepts and controller design
- Get practical techniques for implementing and tuning controllers
- Use feedback “design patterns” for common control scenarios
- Maintain a cache’s “hit rate” by automatically adjusting its size
- Respond to web traffic by scaling server instances automatically
- Explore ways to use feedback principles with queueing systems
- Learn how to control memory consumption in a game engine
- Take a deep dive into feedback control theory

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### **Editorial Review**

#### About the Author

Philipp K. Janert was born and raised in Germany. He obtained a Ph.D. in Theoretical Physics from the University of Washington in 1997 and has been working in the tech industry since, including four years at Amazon.com, where he initiated and led several projects to improve Amazon's order fulfillment process. He is the author of two books on data analysis, including the best-selling "Data Analysis with OpenSource Tools" (O'Reilly, 2010), and his writings have appeared on Perl.com, IBM developerWorks, IEEE Software, and in the Linux Magazine. He has contributed to CPAN and other open-source projects. He lives in the Pacific Northwest.

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