MATLAB AND SIMULINK BASED BOOKS

Robotics in Industry and Education

LEGO Mindstorms NXT is a popular robotics platform used to teach introductory programming and controls.

A curriculum incorporating robotics through courses and competitions can provide practical skills and a solid grounding in mechatronics and control design theory. Robotics development requires interdisciplinary approaches that combine control design, kinematics/dynamics analysis, vision systems, and trajectory planning. Integrating robotics into the curriculum provides students with skills that they can apply in an engineering career. MATLAB® and Simulink® based books aimed at undergraduates, graduates, and practitioners support this approach.

Robotics: Modeling, Planning and Control
By Bruno Siciliano, Lorenzo Sciavicco, Luigi Villani, and Giuseppe Oriolo
Springer

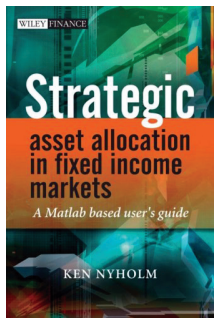
Introduction to Robotics
By Subir K. Saha
Tata McGraw-Hill

Industrieroboter: Methoden der Steuerung und Regelung
(Industrial Robots: Methods of Control and Regulation)
By Wolfgang Weber
Hanser

Re-Evaluating Risk Measures in Computational Finance

The current economic crisis is changing the way financial institutions incorporate an extreme event, or "black swan," into their strategies. In a *New York Times* article, options-trader-turned-academic Nassim Nicholas Taleb noted, "Any system susceptible to a black swan will eventually blow up."

In response to this crisis, financial institutions are re-evaluating traditional risk measures, while quantitative researchers are revising their models, software development strategies, and analytics. Recent textbooks that support these trends include:



Strategic Asset Allocation in Fixed Income Markets: A MATLAB Based User's Guide
By Ken Nyholm
John Wiley & Sons, Inc.

Computational Macroeconomics for the Open Economy
By Guay C. Lim and Paul D. McNelis
The MIT Press

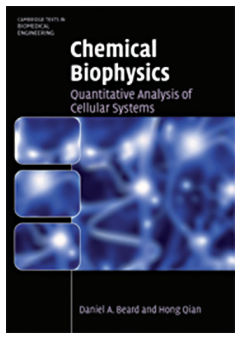
Implementing Models in Quantitative Finance: Methods and Cases
By Gianluca Fusai and Andrea Roncoroni
Springer

Integrating MATLAB into Computational Biology Courses

Scientists study the dynamics of biological systems using mathematical models and gather results from high volumes of data using data analysis and visualization. To help students learn the core computational biology principles, instructors incorporate MATLAB into their undergraduate and graduate courses. Recent textbooks that support this trend include:

Introduction to Computational Genomics: A Case Studies Approach
By Nello Cristianini and Matthew W. Hahn
Cambridge University Press

Systems Bioinformatics: An Engineering Case-Based Approach
By Gil Alterovitz and Marco F. Ramoni
Artech House



Chemical Biophysics: Quantitative Analysis of Cellular Systems
By Daniel A. Beard and Hong Qian
Cambridge University Press

Resources

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TEACHING MATLAB AND MODEL-BASED DESIGN USING LEGO MINDSTORMS NXT
www.mathworks.com/nn9/mindstorms

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