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Sommario/riassunto	This book explains the essentials of fractional calculus and demonstrates its application in control system modeling, analysis and design. It presents original research to find high-precision solutions to fractional-order differentiations and differential equations. Numerical algorithms and their implementations are proposed to analyze

multivariable fractional-order control systems. Through high-quality MATLAB programs, it provides engineers and applied mathematicians with theoretical and numerical tools to design control systems. ContentsIntroduction to fractional calculus and fractional-order controlMathematical prerequisitesDefinitions and computation algorithms of fractional-order derivatives and IntegralsSolutions of linear fractional-order differential equationsApproximation of fractional-order operatorsModelling and analysis of multivariable fractional-order transfer function MatricesState space modelling and analysis of linear fractional-order SystemsNumerical solutions of nonlinear fractional-order differential EquationsDesign of fractional-order PID controllersFrequency domain controller design for multivariable fractional-order SystemsInverse Laplace transforms involving fractional and irrational OperationsFOTF Toolbox functions and modelsBenchmark problems for the assessment of fractional-order differential equation algorithms