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Nota di contenuto	Chapter 1. The Basic Infinite-Dimensional or Functional Optimization Problem -- Chapter 2. From Functional Optimization to Nonlinear Programming by the Extended Ritz Method -- Chapter 3. Some Families of FSP Functions and Their Properties -- Chapter 4. Design of Mathematical Models by Learning from Data and FSP Functions -- Chapter 5. Numerical Methods for Integration and Search for Minima -- Chapter 6. Deterministic Optimal Control Over a Finite Horizon -- Chapter 7. Stochastic Optimal Control with Perfect State Information over a Finite Horizon -- Chapter 8. Stochastic Optimal Control with Imperfect State Information over a Finite Horizon -- Chapter 9. Team Optimal Control Problems -- Chapter 10. Optimal Control Problems over an Infinite Horizon -- Index.

Neural Approximations for Optimal Control and Decision provides a comprehensive methodology for the approximate solution of functional optimization problems using neural networks and other nonlinear approximators where the use of traditional optimal control tools is prohibited by complicating factors like non-Gaussian noise, strong nonlinearities, large dimension of state and control vectors, etc. Features of the text include: • a general functional optimization framework; • thorough illustration of recent theoretical insights into the approximate solutions of complex functional optimization problems; • comparison of classical and neural-network based methods of approximate solution; • bounds to the errors of approximate solutions; • solution algorithms for optimal control and decision in deterministic or stochastic environments with perfect or imperfect state measurements over a finite or infinite time horizon and with one decision maker or several; • applications of current interest: routing in communications networks, traffic control, water resource management, etc.; and • numerous, numerically detailed examples. The authors' diverse backgrounds in systems and control theory, approximation theory, machine learning, and operations research lend the book a range of expertise and subject matter appealing to academics and graduate students in any of those disciplines together with computer science and other areas of engineering.