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Systems -- 12. Introduction to Robotics- Mathematical Issues Intelligent and Robust Path Planning and Control of Robotic Systems -- 13. Prospects for Sustainability in Human-Environment Patterns – Dynamic Management of Common Resources.

Sommario/riassunto

This edited volume focuses on how we can protect our environment and enhance environmental sustainability when faced with changes and pressures imposed by our expansive needs. The volume unites multiple subject areas within sustainability, enabling the techniques and philosophy in the chapters to be applied to research areas in environmental science, plant sciences, energy, biodiversity and conservation. The chapters from expert contributors cover topics such as mathematical modelling tools used to monitor diversity of plant species, and the stability of ecosystem services such as biogeochemical cycling. Empirical research presented here also brings together mathematical developments in the important fields of robotics including kinematics, dynamics, path planning, control, vision, and swarmanoids. Through this book readers will also discover about rainfall-runoff modelling which will give them a better idea of the effects of climate change on the sustainability of water resources at the watershed scale. Modelling approaches will also be examined that maximize readers insights into the global problem of energy transition, i.e. the switch to an energy production system using renewable resources only. Collective and discrete insights are made to assist with synergy which should progress well beyond this book. Insight is also given to assist policy formations, development and implementations. The book has a strong multi-disciplinary nature at its core, and will appeal to both generalist readers and specialists in information technology, mathematics, biology, physics, chemistry and environmental sciences.