Record Nr. UNINA9910779883803321 Stochastic simulation optimization for discrete event systems: **Titolo** perturbation analysis, ordinal optimization and beyond // editors, Chun-Hung Chen, George Mason University, USA, Qing-Shan Jia, Tsinghua University, China, Loo Hay Lee, National University of Singapore, Singapore Hackensack, NJ,: World Scientific, c2013 Pubbl/distr/stampa New Jersey:,: World Scientific,, [2013] 2013 **ISBN** 981-4513-01-6 Descrizione fisica 1 online resource (xxviii, 245 pages): illustrations Collana Gale eBooks Disciplina 003/.83 Soggetti Discrete-time systems - Mathematical models Perturbation (Mathematics) Systems engineering - Computer simulaton Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references. Nota di contenuto Preface; Foreword: A Tribute to a Great Leader in Perturbation Analysis and Ordinal Optimization; Foreword: The Being and Becoming of Perturbation Analysis: Foreword: Remembrance of Things Past: Contents; Part I: Perturbation Analysis; Chapter 1. The IPA Calculus for Hybrid Systems; 1.1. Introduction; 1.2. Perturbation Analysis of Hybrid Systems: 1.2.1. Infinitesimal Perturbation Analysis (IPA): The IPA calculus; 1.3. IPA Properties; 1.4. General Scheme for Abstracting DES to SFM; 1.5. Conclusions and FutureWork; References Chapter 2. Smoothed Perturbation Analysis: A Retrospective and Prospective Look2.1. Introduction; 2.2. Brief History of SPA; 2.3. Another Example; 2.4. Overview of a General SPA Framework; 2.5. Applications; 2.5.1. Queueing; 2.5.2. Inventory; 2.5.3. Finance; 2.5.4. Stochastic Activity Networks (SANs); 2.5.5. Others; 2.6. Random Retrospective and Prospective Concluding Remarks; Acknowledgements; References; Chapter 3. Perturbation Analysis and

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Sommario/riassunto

Discrete event systems (DES) have become pervasive in our daily lives. Examples include (but are not restricted to) manufacturing and supply chains, transportation, healthcare, call centers, and financial engineering. However, due to their complexities that often involve millions or even billions of events with many variables and constraints, modeling these stochastic simulations has long been a ""hard nut to crack"". The advance in available computer technology, especially of cluster and cloud computing, has paved the way for the realization of a number of stochastic simulation optimization f