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Titolo	Heterogeneous Objects Modelling and Applications [[electronic resource]] : Collection of Papers on Foundations and Practice / / edited by Alexander Pasko, Valery Adzhiev, Peter Comninos
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ISBN	3-540-68443-3
Edizione	[1st ed. 2008.]
Descrizione fisica	1 online resource (VII, 285 p.)
Collana	Information Systems and Applications, incl. Internet/Web, and HCI ; ; 4889
Disciplina	006.6
Soggetti	Computers Data structures (Computer science) Data mining Computer simulation Application software Theory of Computation Data Structures Data Storage Representation Data Mining and Knowledge Discovery Simulation and Modeling Computer Applications
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and author index.
Nota di contenuto	An Implicit Complexes Framework for Heterogeneous Objects Modelling -- Heterogeneous Object Design: An Integrated CAX Perspective -- The HybridTree: A Hybrid Constructive Shape Representation for Free-Form Modeling -- Modelling Function-Based Mixed-Dimensional Objects with Attributes -- SARDF: Signed Approximate Real Distance Functions in Heterogeneous Objects Modeling -- Feature-Based Material Blending for Heterogeneous Object Modeling -- Constructive Hypervolume Modeling Using Extended Space Mappings -- Optimization of Continuous Heterogeneous Models -- Automation of the Volumetric Models Construction -- Heterogeneous

	Modeling of Biological Organs and Organ Growth -- Universal Desktop Fabrication.
Sommario/riassunto	Heterogeneous object modelling is a new and quickly developing research area. This book is one of the first attempts to systematically cover the most relevant themes and problems of this new and challenging subject area. It is a collection of invited papers and papers co-authored by the editors. Each chapter presents either new research results or a survey on the following topics: Formal models and abstractions of heterogeneous objects including geometric, topological, discrete and continuous models, operations forming special algebras and conversions between different model types. Data structures and algorithms for representing, modifying and computing with heterogeneous objects. Computational techniques for the design, reconstruction, optimization, analysis and simulation of heterogeneous objects that incorporate information on shape, material and physical behavior using a common framework. Applications of heterogeneous object modelling in engineering and scientific areas, including geophysical, biomedical, artistic and multi-material fabrication applications.