1.	Record Nr.	UNISA996465709503316
	Titolo	Motion in Games [[electronic resource] ] : 4th International Conference, MIG 2011, Edinburgh, United Kingdom, November 13-15, 2011, Proceedings / / edited by Jan Allbeck, Petros Faloutsos
	Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2011
	ISBN	3-642-25090-4
	Edizione	[1st ed. 2011.]
	Descrizione fisica	1 online resource (XII, 460 p. 202 illus., 174 illus. in color.)
	Collana	Image Processing, Computer Vision, Pattern Recognition, and Graphics ; ; 7060
	Disciplina	794.8
	Soggetti	Optical data processing Application software Artificial intelligence User interfaces (Computer systems) Computer simulation Algorithms Computer Imaging, Vision, Pattern Recognition and Graphics Information Systems Applications (incl. Internet) Artificial Intelligence User Interfaces and Human Computer Interaction Simulation and Modeling Algorithm Analysis and Problem Complexity
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Bibliographic Level Mode of Issuance: Monograph
	Nota di contenuto	Intro Title Preface Organization Table of Contents Character Animation I Natural User Interface for Physics-Based Character Animation Introduction Human-in-the-Loop Control Literal vs. Symbolic Mapping Kinematic and Dynamic Continuum Kinematic Control Dynamic Control Integrated KD Control Applications Performance Capture with Physical Interactions Natural User-Interface for Controlling Avatars Discussion References Individualized Agent Interactions Introduction and Motivation Related Work Individualizing Non-verbal Behavior

Formation System -- Animation System -- Movement System -- Gazing System -- Customization Examples -- Personality Differences. --Gender Differences. -- Evaluation Study -- Study Setup -- Results --Conclusion -- References -- A Real-Time System for Crowd Rendering: Parallel LOD and Texture-Preserving Approach on GPU -- Introduction -- Related Works -- Mesh Simplification and LOD -- GPU Computing for Mesh Simplification -- Overview -- Preprocess -- Run-Time Rendering Pipeline -- Mesh Simplification by Perserving Texture Appearance -- Splitting Vertices According to Texture Coordinates --Texture-Preserving Criteria -- Rendering Pipeline for Animated Characters -- LOD Selection -- Generating LODs by Reforming Triangles -- Deforming LODs -- Experiments and Results --Implementation and Experiment -- Performance Evaluation --Conclusion and Future Work -- References -- Motion Synthesis I --Feature-Based Locomotion with Inverse Branch Kinematics --Introduction -- Related Work -- Feature-Based Motion Graph --Analyzing Feature-Based Graphs -- Improving Search among Obstacles with Channels -- IK-Based Motion Deformation -- Discussion and Conclusions -- References -- Planning Plausible Human Animation with Environment-Aware Motion Sampling -- Introduction. Related Work -- Overview -- Animation Control Using Explicit Constraints -- Collision Avoidance with Implicit Constraints --Implementation and Results -- Conclusion -- References -- Physically-Based Character Motion -- Dynamic Balancing and Walking for Real-Time 3D Characters -- Introduction -- Background and Related Work -- General Approaches -- Inverted Pendulum -- Contribution of Paper -- Method -- Mechanics of IP -- Mechanics of Enhanced IP --Calculations -- Managing Stairs and Slopes -- Controllable Motion --Results -- Steering and Speed -- Robustness to Pushes -- Conclusions and Future Work -- References -- Injury Assessment for Physics-Based Characters -- Introduction -- Related Work -- Injury Assessment Model -- Overview -- Individual Injury Measures -- Combining Individual Measures -- Experimentation -- Trial Data -- User Study --Results -- Conclusion, Discussion and Future Work -- Conclusion --Discussion -- Future Work -- References -- Reactive Virtual Creatures for Dexterous Physical Interactions -- Introduction -- Related Works --Approach and Proposal -- Realization -- Physical Simulator -- Physical Motion Controller -- Sensor Models -- Attention Model -- Character AI -- Evaluation -- Environment and Configuration of Virtual Creatures --Experiments and Results -- Exhibition -- Discussion -- Conclusion --References -- Character Animation II -- Building a Character Animation System -- Motivation -- Goals -- System Summary -- Problems with Generalization/Specialization Hierarchy -- Platforms -- Locomotion --Path Finding -- Reaching and Grabbing -- Facial Animation and Speech Synthesis -- Modeling Eye Movements and Saccades -- Head Nods, Head Shakes, and Gazing -- Breathing -- BML Realizer -- Non-verbal Behavior -- Conclusion -- References -- Energy-Based Pose Unfolding and Interpolation for 3D Articulated Characters. Introduction -- Related Works -- Character Interaction -- Path-Planning Movements of Close Interactions -- Linkage Unfolding in Computational Geometry -- Unfolding the Body by Repulsive Energy --Repulsive Energy -- Unfolding Folded Postures -- Interpolating Postures by the Repulsive Energy -- Methodology -- Experimental Results -- Discussions and Conclusion -- References -- Generating Avoidance Motion Using Motion Graph -- Introduction -- Related Work -- Overview -- Constructing a Motion Graph Including Avoidance Motions -- Evaluation of a Candidate Path -- Adjusting the Execution Speed -- Evaluation of a Candidate Path -- Methods Employed for

Computational Efficiency -- Grid-Based Index for Candidate Paths --GPU-Based Collision Detection for Culling -- Experiments --Computational Time for Path Selection -- Evaluation of Avoidance Motions -- Conclusion -- References -- Behavior Animation --Populations with Purpose -- Introduction -- Related Work -- Approach Overview -- Definition of Role -- Role Switching -- Implementation --Action Types -- Action Filter -- Examples -- Discussion -- References -- Parameterizing Behavior Trees -- Introduction -- Parameterizing Subtrees -- The Agent Model -- Subtrees with Arguments -- Smart Events as Behavior Trees -- Example -- Topiary and ADAPT --Conclusions -- References -- Animation Systems -- Intelligent Camera Control Using Behavior Trees -- Introduction -- Background --Cinematography Principles -- Intelligent Camera Representation --Implementation -- Smart Event Representation -- Results --Conclusions -- References -- A Decision Theoretic Approach to Motion Saliency in Computer Animations -- Introduction -- Related Work --Approach -- Pre-experiment -- Overview -- Individual Motion Saliency -- Global Attention Value -- Experiment -- Conclusion and Future Work -- References.

Many-Core Architecture Oriented Parallel Algorithm Design for Computer Animation -- Introduction -- Parallel Computing on Many-Core Architecture -- Many-Core Architecture -- Algorithm Design Issues for Many-Core Architecture -- Problem Decomposition and Resource Utilization -- Load Balancing -- Algorithm Design Paradigm -- Future Development Directions -- Conclusion -- References --Simulation of Natural Phenomena -- Twisting, Tearing and Flicking Effects in String Animations -- Introduction -- Related Work -- Chain Shape Matching (CSM) -- Twisting Effects -- Tearing and Flicking Effects -- Stress and Strain -- Strain Limiting -- Tension Estimation --Tearing and Flicking a String -- Collision Handling -- Results --Conclusion and Future Work -- References -- Adaptive Grid Refinement Using View-Dependent Octree for Grid-Based Smoke Simulation -- Introduction -- Related Work -- Proposed Method --Octree Structure -- Measuring Fluid Variation -- View-Dependent Weighting Factor -- Adaptive Thresholds -- Refinement Conditions --Smoke Simulation -- Results and Discussion -- Conclusion --References -- A Simple Method for Real-Time Metal Shell Simulation -- Introduction -- Related Work -- Mesh Segmentation -- Collision Detection and Response -- Deformation Simulation -- Globalize the Deformation with Spring-Mass Model -- Result -- Conclusion --References -- Motion Synthesis II -- LocoTest: Deploying and Evaluating Physics-Based Locomotion on Multiple Simulation Platforms -- Introduction -- Simulation Platforms Overview -- Character Control and Simulation Pipeline -- Implementation Details -- Simulation World -- Objects -- Joints -- Creating Objects and Joints -- Collision Detection and Processing -- Collision Filtering -- Collision Postprocessing -- Performance Evaluation and Comparison --Conclusion -- References.

Parametric Control of Captured Mesh Sequences for Real-Time Animation -- Introduction -- Related Work -- Performance Capture --Shape Similarity Tree -- Mesh Sequence Alignment -- Mesh Sequence Parametrisation -- Real-Time Non-linear Mesh Sequence Blending --High-Level Parametric Control -- Results -- Conclusions -- References -- Real-Time Interactive Character Animation by Parallelization of Genetic Algorithms -- Introduction -- Related Work -- Motion Clips Extraction -- Controller Construction -- Problem Formulation --Approximation Accuracy -- Parallelization of Genetic Algorithms --Experiments -- Discussion and Future Work -- References -- Crowd

	Simulation Improved Benchmarking for Steering Algorithms Introduction Experience with SteerBench Metrics for Evaluation Benchmarks for Evaluation Results Conclusion References When a Couple Goes Together: Walk along Steering Introduction General Architecture and Implemented Steering Behaviors Walk along Steering Behavior Advanced Walk along Behavior The Give Way Parameter Advanced Walk along Behavior The Wait for Partner Parameter Evaluation Method Results Discussion and Possible Improvements Conclusion References Path Planning and Navigation I Parallel Ripple Search - Scalable and Efficient Pathfinding for Multi-core Architectures Introduction and Previous Work Parallel Pathfinding Implementations PBS: Parallel Bidirectional Search DFS: Distributed Fringe Search PHS: Parallel Hierarchic Search Algorithm Evaluation and Comparison PRS: Parallel Ripple Search Algorithm Performance Conclusion and Future Work References Hybrid Path Planning for Massive Crowd Simulation on the GPU Introduction Related Work Overview of the Proposed System Constructing the Graph. Determining the Region of Interest.
Sommario/riassunto	This book constitutes the proceedings of the 4th International Workshop on Motion in Games, held in Edinburgh, UK, in November 2011. The 30 revised full papers presented together with 8 revised poster papers in this volume were carefully reviewed and selected from numerous submissions. The papers are organized in topical sections on character animation, motion synthesis, physically-based character motion, behavior animation, animation systems, crowd simulation, as well as path planning and navigation.