Autodesk Maya Document Guide

Getting the books Autodesk Maya Document Guide now is not type of inspiring means. You could not unaccompanied going subsequent to ebook increase or library or borrowing from your links to right to use them. This is an enormously simple means to specifically get lead by on-line. This online revelation Autodesk Maya Document Guide can be one of the options to accompany you next having further time.

It will not waste your time. recognize me, the e-book will utterly vent you further business to read. Just invest tiny era to right to use this on-line statement Autodesk Maya Document Guide as capably as evaluation them wherever you are now.



Arnold Render Cinema4D User Guide CADCIM Technologies Redshift is a high-performance production-quality renderer that supports biased rendering techniques for incredibly fast noise-free renders. With Redshift, you can get the rendering performance of a Graphics Index small render farm from your existing workstation, saving you time and money, and unleashing your creative potential. This guide provides information on setting up and using Redshift. In addition Written by renowned author and 3D artist Kelly L. to documenting the various features and settings of Redshift, this guide provides important tips to help you get the most out of Redshift — including helping you choose the most appropriate global illumination techniques to use for a given scene and how to troubleshoot problems like splotches or flickering during animations. To navigate this guide, simply pick a topic from the Table of Contents on the left. You can also search for a specific keyword using the search box located in the top-right corner of every page.

Autodesk Maya 2023 Basics Guide CADCIM Technologies

Computer-aided design (CAD) is the dominant assumptions about your previous experience with design and drawing tool used in architecture, and all students need to acquire basic skills in using it. This book moving into modeling, texturing, lighting, animating, explains the key CAD skills required to create plans, 3D models and perspectives. Detailed text and hundreds of screengrabs and visuals are used to demonstrate the various techniques and processes. 2D skills task, the goal and the necessary features that are are shown using AutoCAD, SketchUp and Vectorworks, while 3D modelling and presentation techniques also include 3ds Max, Maya, Form Z and Photoshop. The reader comprehensive, step-by-step lessons, you'll develop the will learn how to simplify the software interface and tools in order to focus on the most common and useful tasks. This is an invaluable guide for all students of architecture.

Autodesk Maya 2022: A Comprehensive Guide, 13th Edition Serdar Hakan DÜZGÖREN

Bullet Rigid and Soft Body Dynamics The Bullet physics engine lets you create large-scale, highly-realistic dynamic and kinematic simulations. You can use Bullet to create content for rendered animations for film and visualization, as well as for the setup of game engine and real-time simulations. The Bullet plug-in provides seamless mapping of Bullet objects to Maya objects. The controls to the Bullet objects are exposed in Maya Objects, and the interaction follows the typical Maya dynamics paradigm. Bullet Physics is an open-source collision detection, rigid body and soft body dynamics library. The library provides a collection of objects each corresponding to the various aspects of dynamic simulations. For example, the Bullet solver, rigid bodies, soft bodies and constraints are all unique Bullet objects. Mastering Autodesk Maya 2013 CRC Press

Autodesk Maya 2020 is a powerful, integrated 3D modeling, animation, visual effects, and rendering software developed by Autodesk Inc. This integrated node based 3D software finds its application in the development of films, games, and design projects. The intuitive user interface and workflow tools of Maya 2020 have made the job of design visualization specialists a lot easier. Autodesk Maya 2020: A Comprehensive Guide covers all features of Autodesk Maya 2020 software in a simple, lucid, and comprehensive manner. It will unleash your creativity, thus helping you create realistic 3D models, animation, and visual effects. In this edition, new tools and enhancements in modeling, animation, rigging as well as performance improvements in bifrost are covered. Additionally, the newly introduced Mash module, which is used for creating motion graphics, is also covered in the book. Salient Features: Consists of 17 chapters that are organized in a pedagogical sequence covering a wide range of topics such as Maya interface, Polygon modeling, NURBS modeling, texturing, lighting, cameras, animation, Paint Effects, Rendering, nHair, Fur, Fluids, Particles, nParticles and Bullet Physics in Autodesk Maya 2020. The first page of every chapter summarizes the topics that are covered in it. Consists of hundreds of illustrations and a comprehensive coverage of Autodesk Maya 2020 concepts & commands. Real-world 3D models and examples focusing on industry experience. Step-by-step instructions

that guide the user through the learning process. Additional information is provided throughout the book in the form of tips and notes. Self-Evaluation test, Review Questions, and Exercises are given at the end of each chapter so that the users can assess their knowledge. Table of Contents Chapter 1: Exploring Maya Interface Chapter 2: Polygon Modeling Chapter 3: NURBS Curves and Surfaces Chapter 4: NURBS Modeling Chapter 5: UV Mapping Chapter 6: Shading and Texturing Chapter 7: Lighting Chapter 8: Animation Chapter 9: Rigging, Constraints, and Deformers Chapter 10: Paint Effects Chapter 11: Rendering Chapter 12: Particle System Chapter 13: Introduction to nParticles Chapter 14: Fluids Chapter 15: 17 chapters that are organized in a pedagogical sequence nHair Chapter 16: Bifrost Chapter 17: Bullet Physics and Motion

Mastering Autodesk Maya 2015 Autodesk Maya 2020 **Basics Guide**

Murdock, Autodesk Maya 2022 Basics Guide is designed to give new users a solid understanding of the fundamental skills needed to create beautiful 3D models and stunning animations with Autodesk Maya. Using clear and easy to follow instructions this book will guide you through learning all the major features of Maya. The text is complemented by video instruction. Each chapter has a corresponding video tutorial that introduces you to the topics and allows you to watch and learn how functions are performed in a way that a text alone cannot do. Autodesk Maya 2022 Basics Guide makes no Autodesk Maya. It begins by helping you get comfortable with the user interface and navigating scenes before rendering and more. Additionally, more advanced features such as character rigging, skinning, animating with dynamics and MEL scripting are also introduced. Each chapter begins by examining the concept behind each involved. Then you go in-depth with the objective of your task as you study examples and learn the steps necessary to complete it. Working your way through the confidence you need to create incredible renderings and animations using Autodesk Maya. Who this book is for This text was created specifically for users with no prior 3D modeling or animation experience. If you want to work in a creative field or are just curious about how 3D animated movies are made this book is the perfect way to get started. Users who are migrating from another 3D application or upgrading from a previous version of Maya will also benefit greatly from this text. What you'll learn • How to create models using primitives, curves, NURBS, Polygons and more • How to assign materials and textures to make realistic-looking models • How to use Paint Effects to paint on and quickly create complex 3D Models • How to use lights, cameras, and depth of field to render captivating scenes • How to use keyframes, motion paths and the Graph Editor to create animations • How to use character rigging, skinning, and inverse kinematics to animate realistic movements • How to use various deformers to manipulate objects, animations and special effects • How to add influence objects, skin weights and hair to a character for a more realistic look • How to use dynamics to create fire, smoke, lightning, explosions, cloth and ocean effects • How to enable raytracing, motion blur, and fog effects for increased realism • How to render stills and animations using Maya Vector and Mental Ray for different looks • How to use the Command Line and MEL Scripting to work faster About Autodesk Maya Maya is a program, created by Autodesk, used to model, animate, and render 3D scenes. 3D scenes created with Maya have appeared in movies, television, advertisements, games, product visualizations, and on the Web. With Maya, you can create and animate your own 3D scenes and render them as still images or as animation sequences.

Autodesk Maya 2020 Bifrost Extension SDC Publications Autodesk Maya 2022 is a powerful, integrated 3D modeling, animation, visual effects, and rendering software developed by nDynamics Simulation Framework and Fluid Effects. Autodesk Inc. This integrated node-based 3D software finds its Autodesk Maya 2016 Basics Guide Padexi Academy application in the development of films, games, and design projects. The intuitive user interface and workflow tools of Maya 2022 have made the job of design visualization specialists a lot easier. Autodesk Maya 2022: A Comprehensive Guide book covers all features of Autodesk Maya 2022 software in a simple, lucid, and comprehensive

manner. It aims at harnessing the power of Autodesk Maya 2022 for 3D and visual effects artists and designers. It caters to the needs of both the novice and advanced users of Maya 2022 and is ideally suited for learning at your convenience and at your pace. Our latest edition covers new tools and enhancements in modeling, animation, rigging and much more. The performance improvements in tools such as Bifrost, XGen, and Arnold renderer are covered in depth. The author has also explained the newly introduced tool, Sweep Mesh, with the help of suitable examples and tutorials. Salient Features Consists of covering a wide range of topics such as Maya interface, Polygon modeling, NURBS modeling, texturing, lighting, cameras, animation, Paint Effects, Rendering, nHair, XGen Fur, Fluids, Particles, nParticles and Bullet Physics, Motion Graphics, and MASH in Autodesk Maya 2022. The first page of every chapter summarizes the topics that are covered in it. Consists of hundreds of illustrations and a comprehensive coverage of Autodesk Maya 2022 concepts & commands. Realworld 3D models and examples focusing on industry experience. Step-by-step instructions that guide the user through the learning process. Additional information is provided throughout the book in the form of tips and notes. Self-Evaluation test, Review Questions, and Exercises are given at the end of each chapter so that the users can assess their knowledge. Table of Contents Chapter 1: Exploring Maya Interface Chapter 2: Polygon Modeling Chapter 3: NURBS Curves and Surfaces Chapter 4: NURBS Modeling Chapter 5: UV Mapping Chapter 6: Shading and Texturing Chapter 7: Lights and Cameras Chapter 8: Animation Chapter 9: Rigging, Constraints, and Deformers Chapter 10: Paint Effects Chapter 11: Rendering Chapter 12: Particle System Chapter 13: Introduction to nParticles Chapter 14: Fluids Chapter 15: nHair and XGen Chapter 16: Bifrost Chapter 17: Bullet Physics and Motion Graphics Index

Redshift Render Basic User Guide Serdar Hakan DÜZGÖREN Create innovative CG solutions with Maya and this creative guide Professional Maya artists have to think on their feet. It's nothing for them to receive just vague sketches or incomplete ideas of what the studio wants and have to come up with something brilliant. If you're an intermediate to advanced Maya user, Maya Visual Effects: The Innovator's Guide, Second Edition is what you need to meet the challenge. Professional Maya artist Eric Keller offers inspired solutions and hands-on projects, as well as numerous practical shortcuts and deadlines, so you learn to produce innovative CG assets from scratch, using Maya, on a deadline. Shows intermediate to advanced Maya users new solutions, workarounds, and shortcuts for creating Maya visual effects on deadline Gives readers plenty of hands-on projects, so they come up with solutions that they can add to their Maya toolsets Offers workable ideas that can be applied, no matter which version of Maya software is being used Presents projects in an engaging style, with pages of full-color imagery to illustrate concepts Create amazing effects with the creative insights and fresh advice in this new edition of Maya Visual Effects: The Innovator's Guide.

Mastering Autodesk Maya 2014 CRC Press Character Animation Before you animate the characters and objects in your scene, set up the scene by rigging all your characters and by applying the appropriate constraints and deformers to all the objects you want to animate. Rigging a character, also known as character setup, involves creating skeletons and IK handles for your characters, binding skins to the skeletons, and setting up deformers and constraints. You can also create deformers for your character and animate them to produce effects; for example, the jiggling belly (jiggle deformer), furrowing brow (wire deformer), and flexing biceps (lattice deformer) of a sumo wrestler model. Non-character objects are also very important to bringing your scene to life. You can limit and control the transformations of objects by constraining them to characters or other models in your scene. You can also create deformers for objects to create complex deformation effects. For example, you can apply a squash deformer to the model of a ball and then parent constrain the ball to the hands of a character. With this setup, you can key the weights of the character's hands and the squash deformer's attributes to create an animation of the character bouncing the ball from hand to hand while the ball squashes on the ground and stretches as it rises back into the air. In addition to setting up characters and objects for animation, you can set up Maya® Dynamics™ for animation. You can constrain dynamic objects such as particle emitters, fields, and fluids to objects or characters in your scene. For more information, see Written by renowned author and 3D artist Kelly L. Murdock, Autodesk Maya 2020 Basics Guide is designed to give new users a solid understanding of the fundamental skills needed to create beautiful 3D models and stunning animations with

Autodesk Maya. Using clear and easy to follow instructions this

book will guide you through learning all the major features of

Maya. The text is complemented by video instruction. Each chapter has a corresponding video tutorial that introduces you to the topics and allows you to watch and learn how functions are performed in a way that a text alone cannot do. Autodesk Maya 2020 Basics Guide makes no assumptions about your previous experience with Autodesk Maya. It begins by helping you get comfortable with the user interface and navigating scenes before moving into modeling, texturing, lighting, animating, rendering and more. Additionally, more advanced features such as character rigging, skinning, animating with dynamics and MEL scripting are also introduced. Each chapter begins by examining the concept behind each task, the goal and the necessary features that are involved. Then you go indepth with the objective of your task as you study examples and learn the steps necessary to complete it. Working your way features such as character rigging, skinning, animating with through the comprehensive, step-by-step lessons, you'll develop the confidence you need to create incredible renderings and animations using Autodesk Maya. Who this book is for This text was created specifically for users with no prior 3D modeling or animation experience. If you want to work in a creative field or are just curious about how 3D animated movies are made this book is the perfect way to get started. Users who are migrating from another 3D application or upgrading from a previous version of Maya will also benefit greatly from this text. What you'll learn • How to create models using curves, NURBS, Polygons and more • How to assign materials and textures to make realistic-looking models • How to use Paint Effects to paint on and quickly create complex 3D Models • How to use lights, cameras, and depth of field to render captivating scenes • How to use keyframes, motion paths and the Graph Editor to create animations • How to use character rigging, skinning, and inverse kinematics to animate realistic movements • How to add influence objects, skin weights and hair to a character for a more realistic look • How to use dynamics to create fire, smoke, lightning, explosions, cloth and ocean effects • How to enable raytracing, motion blur, and fog effects for increased realism • How to render stills to use character rigging, skinning, and inverse kinematics to and animations using Maya Vector and Mental Ray for different animate realistic movements • How to use various deformers looks • How to use the Command Line and MEL Scripting to work faster About Autodesk Maya Maya is a program, created by Autodesk, used to model, animate, and render 3D scenes. 3D scenes created with Maya have appeared in movies, television, advertisements, games, product visualizations, and on the Web. With Maya, you can create and animate your own 3D scenes and render them as still images or as animation sequences.

Mastering Autodesk Maya 2012 Laurence King Publishing Written by renowned author and 3D artist Kelly L. Murdock Autodesk Maya 2018 Basics Guide is designed to give new users a solid understanding of the fundamental skills needed to create beautiful 3D models and stunning animations with Autodesk Maya. Using clear and easy to follow instructions this book will guide you through learning all the major features of Maya. The text is complemented by video instruction. Each chapter has a corresponding video tutorial that introduces you to the topics and allows you to watch and learn how functions are performed in a way that a text alone cannot do. Autodesk Maya 2018 Basics Guide makes no assumptions about your previous experience with Autodesk Maya. It begins by helping you get comfortable with the user interface and navigating scenes before moving into modeling. texturing, lighting, animating, rendering and more. Additionally, more advanced features such as character rigging, skinning, animating with dynamics and MEL scripting are also introduced. Each chapter begins by examining the concept behind each task, the goal and the necessary features that are involved. Then you go in-depth with the objective of your task as you study examples and learn the steps necessary to complete it. Working your way through the comprehensive, step-by-step lessons, you'll develop the confidence you need to create incredible renderings and animations using Autodesk Maya.

A Detailed Guide to Modeling, Texturing, Lighting, and Rendering SDC Publications

Arnold Arnold is an advanced cross-platform rendering library, or API, used by a number of prominent organizations in film, television, and animation, including Sony Pictures Imageworks. It was developed as a photorealistic, physically-based ray tracing alternative to traditional scanline based rendering software for CG animation. Arnold uses cutting-edge algorithms that make the most effective use of your computer's hardware resources: memory, disk space, multiple processor cores and SIMD/SSE units. The Arnold architecture was designed to easily adapt to existing pipelines. It is built on top of a pluggable node system; users can extend and customize the system by writing new shaders, cameras, filters, and output driver nodes, as well as procedural geometry, custom ray types and user-defined geometric data. The primary goal of the Arnold architecture is to provide a complete solution as a primary renderer for animation and visual effects. However, Arnold can also be used as: A ray server for traditional scanline renderers. A tool for baking/procedural generation of lighting data (lightmaps for videogames). An interactive rendering and relighting tool.

Autodesk Maya 2019: A Comprehensive Guide, 11th Edition John Wiley & Sons

Written by renowned author and 3D artist Kelly L. Murdock,

Autodesk Maya 2023 Basics Guide is designed to give new users a solid understanding of the fundamental skills needed to on the creative aspects Includes case studies and create beautiful 3D models and stunning animations with Autodesk Maya. Using clear and easy to follow instructions this movies, sample project files, MELscripts, and more book will guide you through learning all the major features of Maya. The text is complemented by video instruction. Each chapter has a corresponding video tutorial that introduces you to the topics and allows you to watch and learn how functions are performed in a way that a text alone cannot do. Autodesk Maya 2023 Basics Guide makes no assumptions about your previous experience with Autodesk Maya. It begins by helping you get comfortable with the user interface and navigating scenes before moving into modeling, texturing, lighting, animating, rendering and more. Additionally, more advanced dynamics and MEL scripting are also introduced. Each chapter begins by examining the concept behind each task, the goal and the necessary features that are involved. Then you go indepth with the objective of your task as you study examples and learn the steps necessary to complete it. Working your way why-and not just how-to apply Maya techniques in the real through the comprehensive, step-by-step lessons, you'll develop the confidence you need to create incredible renderings and animations using Autodesk Maya. Who this book is for This text was created specifically for users with no prior 3D modeling or animation experience. If you want to work training manual. When employed as a text, it frees the in a creative field or are just curious about how 3D animated movies are made this book is the perfect way to get started. Users who are migrating from another 3D application or upgrading from a previous version of Maya will also benefit greatly from this text. What you'll learn • How to create models using primitives, curves, NURBS, Polygons and more • How to assign materials and textures to make realistic-looking models How to use Paint Effects to paint on and quickly create complex 3D Models • How to use lights, cameras, and depth of field to render captivating scenes • How to use keyframes, motion paths and the Graph Editor to create animations • How to manipulate objects, animations and special effects • How to add influence objects, skin weights and hair to a character for a aspiring artist not wanting to scramble for information. more realistic look • How to use dynamics to create fire, smoke, lightning, explosions, cloth and ocean effects • How to enable raytracing, motion blur, and fog effects for increased realism • How to render stills and animations using Maya Vector and Mental Ray for different looks • How to use the Command Line and MEL Scripting to work faster About Autodesk Maya Maya is a program, created by Autodesk, used to model, animate, and render 3D scenes. 3D scenes created with Maya have appeared in movies, television, advertisements, games, product visualizations, and on the Web. With Maya, you can create and animate your own 3D scenes and render them as still images or as animation sequences.

Autodesk Maya 2011: A Comprehensive guide SDC Publications Rendering is the final stage in the 3D computer graphics production process. Though the wider context of rendering begins with shading professionals. Learn professional techniques used in realand texturing objects and lighting your scene, the rendering process ends when surfaces, materials, lights, and motion are processed into a final image or image sequence. Visualization vs. the final render As you build scenes (shade and texture objects, light scenes, position cameras, and so on), you'll want to visualize them many times before producing the final rendered image or image sequence. This process may involve (depending on your particular project) creating and setting up additional cameras. See Create a camera and Adjust a camera and its attributes. Visualize a scene during early iterations to detect and correct image quality problems or to estimate and reduce the amount of time the final render takes before you spend time performing the final render. You can visualize your scene in the viewport, interactively render with the Maya software renderer using IPR; or, if you are using the Arnold for Maya into reality with ease. Also, it will unleash your creativity, thus renderer, interactively render in the Arnold RenderView. You can render a single frame or a sequence of multiple frames; that is, an animation or part of an animation interactively from within Maya. Alternatively, you can batch render or command line render one or more frames. Before you start your final render, be sure to select a renderer, and set the file name, format, and resolution of your rendered images in the Render Settings window.

Autodesk Maya 2020: A Comprehensive Guide, 12th **Edition** John Wiley & Sons

One of the first books on Autodesk's new Mudbox 3D modeling and sculpting tool! Autodesk's Mudbox was used to create photorealistic creatures for The Dark Knight, The package them up for artists at their studio to use across Mist, and others films. Now you can join the crowd interested in learning this exciting new digital modeling and sculpting tool with this complete guide. Get up to speed on all of Mudbox's features and functions, learn how sculpt and paint, and master the art of using effective workflows to make it all go easier. Introduces Autodesk's Mudbox, an exciting 3D modeling and sculpting tool that enables you to create photorealistic creatures for film or games; it is interoperable with Autodesk's 3ds Max and Maya products Explains what digital sculpting is—and what Graph, a new node-based, visual programming it isn't—and how to fit it into the pipeline when creating assets for film, television, games, and advertising Shows you how sculpt and paint a model in Mudbox; breaks down the complexities and gets you started right away with interesting projects Helps you set up workflows to cut

the time you spend on the technology, freeing you to focus examples from industry leaders as well as a DVD with Develop skills as a digital content creator or visual effects or CG artist with a good understanding of Mudbox and this valuable guide.

Autodesk Maya 2020 Character Animation Book CRC Press

Autodesk Maya 2020 Basics GuideSDC Publications A Comprehensive Guide of Autodesk Maya SDC Publications Each chapter of 3D Animation for the Raw Beginner Using Maya introduces critical aspects of the 3D animation process and presents clear and concise tutorials that link key concepts to practical Autodesk® Maya® techniques. Providing a principles-based, yet pragmatic, approach to 3D animation, this first-of-its-kind book: Describes the process for creating animated projects in a nonmathematical fashion Explains world Includes access to a dedicated Web site, http://3dbybuzz.com, featuring useful videos, lessons, and updates 3D Animation for the Raw Beginner Using Maya is an ideal academic textbook as well as a superlative do-it-vourself instructor from the painstaking task of developing step-by-step examples to present Maya's complex interface and basic capabilities. When used for individual study, aspiring animators revel in the book's easy-to-follow, hands-on learning style. Make 3D Animation for the Raw Beginner Using Maya your book of choice for understanding the essential theory and practice of 3D animation.

Autodesk Maya 2018: A Comprehensive Guide, 10th Edition SDC Publications

Maya Python for Games and Film is the first book to focus

exclusively on how to implement Python with Maya. Written by trusted authorities in the field, this in-depth guide will help you master Maya Python, whether you're a seasoned technical artist looking to make the transition from MEL to Python or an Learning Autodesk Maya 8 John Wiley & Sons Go from 'beginner' to 'expert' with this professional, tutorialbased guide to Maya 2016 Mastering Autodesk Maya 2016 is your professional hands-on coverage to getting the most out of Maya. If you already know the basics of Maya, this book is your ticket to full coverage of all Maya 2016's latest features, and showcases the tools and methods used in real-world 3D animation and visual effects. From modeling, texturing, animation, and effects to high-level techniques for film, television, games, and more, this book expands your skill set, and helps you prepare for the Autodesk Maya certification exam. Filled with challenging tutorials and real-world scenarios this book provides valuable insight into the entire CG production timeline. Take your Maya skills to the next level with step-by-step instruction and insight from the industry world visual effects Master Dynamics, Maya Muscle, Stereo Cameras, mental ray, and more Expand your skills with advanced techniques for cloth, fur, and fluids Understand everything you need to know for the Maya certification exam Maya 8 for Windows and Macintosh Serdar Hakan DÜZGÖREN A wide range of 3D visual effects, computer graphics, and character animation tools make it an ideal platform for 3D artists. The intuitive user interface and workflow tools of Maya 2017 have made the job of design visualization specialists a lot easier. A Comprehensive Guide of Autodesk Maya covers all features of Autodesk Maya in a simple, lucid, and comprehensive manner. It aims at harnessing the power of Autodesk Maya for 3D and visual effects artists, and designers. This textbook will help you transform your imagination helping you create realistic 3D models, animation, and visual effects. It caters to the needs of both the novice and advanced users of Maya and is ideally suited for learning at your convenience and at your pace.

3D Animation for the Raw Beginner Using Maya Serdar Hakan DÜZGOREN

What is Bifrost? Bifrost makes it possible for 3D artists and TDs to create complex effects in Maya quickly and easily using a new visual programming environment. TDs can create custom graphs in the Bifrost Graph Editor and different shows, scenes, and shots. Artists can also take advantage of a wide array of ready-to-use graphs to create effects like fire, smoke, explosions, sand, and snow right out-of-the-box. Previously, Bifrost included the following features: Bifrost Fluids, a procedural framework that can create simulated liquid and aerodynamic effects using a FLIP (fluid implicit particle) solver. BOSS, the Bifrost Ocean Simulation System. With Bifrost Extension for Maya, two additional features are included: Bifrost environment where you can build procedural graphs to create effects such as sand, fire, smoke, and explosions. bifcmd, a tool that executes these procedural graphs directly on the command line.