

1. Record Nr.	UNINA9910460277003321
Autore	Janke Steven J. <1947->
Titolo	Mathematical structures for computer graphics // Steven J. Janke
Pubbl/distr/stampa	Hoboken, New Jersey : , : Wiley, , 2015 ©2015
ISBN	1-118-71198-X 1-118-71212-9
Edizione	[1st edition]
Descrizione fisica	1 online resource (889 p.)
Classificazione	COM012040
Disciplina	006.601/51
Soggetti	Computer graphics - Mathematics Three-dimensional imaging - Mathematics Electronic books.
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 and index.
Nota di contenuto	Machine generated contents note: Preface iii 1 Basics 1 1.1 Graphics Pipeline 2 1.2 Mathematical Descriptions 5 1.3 Position 6 1.4 Distance 9 1.5 Complements and Details 13 1.6 Exercises 17 2 Vector Algebra 21 2.1 Basic Vector Characteristics 22 2.2 Two Important Products 31 2.3 Complements and Details 42 2.4 Exercises 46 3 Vector Geometry 49 3.1 Lines & Planes 49 3.2 Distances 55 3.3 Angles 63 3.4 Intersections 65 3.5 Additional Key Applications 73 3.6 Homogeneous Coordinates 86 3.7 Complements and Details 90 3.8 Exercises 94 4 Transformations 99 4.1 Types of Transformations 100 4.2 Linear Transformations 101 4.3 Three dimensions 113 4.4 Affine Transformations 123 4.5 Complements and Details 134 4.6 Exercises 145 5 Orientation 149 5.1 Cartesian Coordinate Systems 151 5.2 Cameras 159 5.3 Other Coordinate Systems 182 5.4 Complements and Details 190 5.5 Exercises 193 6 Polygons & Polyhedra 197 6.1 Triangles 197 6.2 Polygons 213 6.3 Polyhedra 230 6.4 Complements and Details 245 6.5 Exercises 250 7 Curves & Surfaces 255 7.1 Curve Descriptions 256 7.2 Bezier Curves 268 7.3 B-Splines 278 7.4 NURBS 295 7.5 Surfaces 300 7.6 Complements and Details 311 7.7 Exercises 316 8 Visibility 321 8.1 Viewing 321 8.2 Perspective Transformation 323 8.3 Hidden Surfaces 333 8.4 Ray Tracing 344 8.5 Complements

and Details 351 8.6 Exercises 356 9 Lighting 359 9.1 Color
Coordinates 359 9.2 Elementary Lighting Models 364 9.3 Global
Illumination 384 9.4 Textures 391 9.5 Complements and Details 403
9.6 Exercises 408 10 Other Paradigms 411 10.1 Pixels 412 10.2 Noise
421 10.3 L-Systems 435 10.4 Exercises 443 A Geometry &
Trigonometry 447 A.1 Triangles 447 A.2 Angles 449 A.3 Trigonometric
Functions 450 B Linear Algebra 455 B.1 Systems of Linear Equations
455 B.2 Matrix Properties 458 B.3 Vector Spaces 460 .

Sommario/riassunto

"This book is for readers who wish to understand the mathematical tools that are necessary to produce three-dimensional models and the resulting screen images. Written by an academic with over 20 years of teaching experience, the intent of the book is to show relevant and focused mathematical derivations that help students understand computer graphics. Intuitive, rather than just theorem/proof discussions set the tone for the presentation. Some algebra, high-school geometry, and trigonometry are presumed for adequate comprehension. Notions of why results are important give the reader a sense of ownership and application. Chapters are written in a two-tiered style so as to allow for flexibility in the level of mathematics desired. Two- and three-dimensional vector geometry is covered using transforms, curves, and surfaces. More focused graphics topics like perspective with the accompanying projective geometry, polyhedral as building blocks for objects, and ray retracing help pull the vector technique together. An assortment of other topics helps round-out the discussion. These include noise, randomness, and L-systems. Plentiful exercises are showcased throughout. An author-maintained web site includes further computer programming notes and solutions to selected exercises"--

"Explains the mathematical tools that are necessary to produce three-dimensional models and the resulting screen images. Demonstrates relevant and focused mathematical derivations that help students understand computer graphics"--

2. Record Nr.	UNINA9910461965903321
Autore	Pershan Peter S. <1934->
Titolo	Liquid surfaces and interfaces : synchrotron X-ray methods // Peter S. Pershan, Harvard University, Massachusetts, Mark Schlossman, University of Illinois, Chicago [[electronic resource]]
Pubbl/distr/stampa	Cambridge : , : Cambridge University Press, , 2012
ISBN	1-139-53960-4 1-107-22547-7 1-68015-679-9 1-283-57471-3 9786613887160 1-139-52678-2 1-139-53144-1 1-139-52797-5 1-139-04587-3 1-139-52558-1 1-139-53025-9
Descrizione fisica	1 online resource (xxii, 311 pages) : digital, PDF file(s)
Disciplina	530.4/27
Soggetti	Liquid-liquid interfaces Synchrotron radiation X-ray spectroscopy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from publisher's bibliographic system (viewed on 05 Oct 2015).
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	1. Introduction -- 2. Instrumentation -- 3. Theory of x-ray scattering from liquid surfaces -- 4. Experiments on liquid surfaces and interfaces.
Sommario/riassunto	The availability of synchrotron x-ray sources and the subsequent developments described in this book have led to substantial progress in our understanding of molecular ordering at liquid interfaces. This practical guide enables graduate students and researchers working in physics, chemistry, biology and materials science to understand and carry out experimental investigations into the basic physical and

chemical properties of liquid surfaces and interfaces. The book examines the surfaces of bulk liquids, thin wetting films and buried liquid-liquid interfaces. It discusses experiments on simple and complex fluids, including pure water and organic liquids, liquid crystals, liquid metals, electrified liquid-liquid interfaces and interfacial monolayers of amphiphiles, nanoparticles, polymers and biomolecules. A detailed description of the apparatus and techniques required for these experiments is provided, and theoretical approaches to data analysis are described, including approximate methods such as the Master formula, the Born approximation, Parratt's algorithm and the Distorted Wave Approximation.
