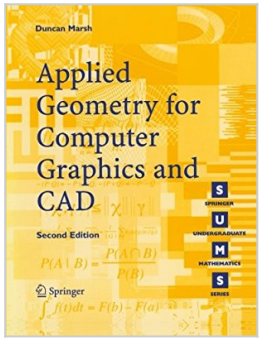

Applied Geometry for Computer Graphics and CAD (Springer Undergraduate Mathematics Series)

By Duncan Marsh

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Focusing on the manipulation and representation of geometrical objects, this book explores the application of geometry to computer graphics and computer-aided design (CAD). Over 300 exercises are included, some new to this edition, and many of which encourage the reader to implement the techniques and algorithms discussed through the use of a computer package with graphing and computer algebra capabilities. A dedicated website also offers further resources and useful links.

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Applied Geometry for Computer Graphics and CAD (Springer Undergraduate Mathematics Series) By Duncan Marsh Bibliography

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- Brand: Brand: Springer
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- Number of items: 1
- Dimensions: 9.25" h x .83" w x 7.01" l, 1.14 pounds
- Binding: Paperback
- 350 pages

Editorial Review

Review

From the reviews:

a nice introduction to the foundations of applications of geometry to computer graphics and computer-aided design….A useful textbook.

Zentralblatt MATH

Mathematics students often ask where they can find a nice introduction to computer graphics and computer-aided design; professors have also been known to pose the same question. They will all find an answer here: Marsh’s book should guide them effectively and painlessly towards the applications of mathematics and geometry in graphics and CAD.

Computer-Aided Design 32 (2000)

From the reviews of the second edition:

"This is a mathematics textbook on the basics of the geometry involved in computer graphics and computer-aided design, written at an undergraduate level suitable for students of mathematics, computer science, and engineering. … All of the book’s topics are presented in a clean and concise way, with nice illustrations and attention to both geometric ideas and practical issues of computing. … This book would be useful for instructors who want a specific reference … ." (Adam Coffman, Mathematical Reviews, 2005h)

"Images generated by a computer are ubiquitous, they are used in science, in engineering, and by the entertainment business. This textbook is an introduction to the mathematics behind these images. … This exposition is intended for a broad audience with basic mathematical knowledge (vectors, matrices, calculus)." (P. Schmitt, Monatshefte für Mathematik, Vol. 151 (4), 2007)

“The title says it all. … covers exactly what you would expect: theory and background for applying geometric techniques for visualization on a computer. … This book is part of the SUMS (Springer Undergraduate Mathematics Series). The theory and applications are explained well, and moreover the text contains numerous examples, problems, and fully worked solutions. The book was written with students in computer science, engineering as well as of mathematics in mind … .” (Pieter Audenaert, Bulletin of the Belgian Mathematical Society, 2007)

From the Back Cover

Focusing on the manipulation and representation of geometrical objects, this book explores

the application of geometry to computer graphics and computer-aided design (CAD).

An introduction to transformations of the plane and three-dimensional space describes how objects can be

constructed from geometric primitives and manipulated. This leads into a treatment of projections and the method of rendering objects on a computer screen by application of the complete viewing operation. Subsequently, the emphasis is on the two principal curve and surface representations, namely, Bézier and B-spline (including NURBS).

As in the first edition, applications of the geometric theory are exemplified throughout the book, but new features in this revised and updated edition include:

the application of quaternions to computer graphics animation and orientation;

discussions of the main geometric CAD surface operations and constructions: extruded, rotated and swept surfaces; offset surfaces; thickening and shelling; and skin and loft surfaces;

an introduction to rendering methods in computer graphics and CAD: colour, illumination models, shading algorithms, silhouettes and shadows.

Over 300 exercises are included, some new to this edition, and many of which encourage the reader to implement the techniques and algorithms discussed through the use of a computer package with graphing and computer algebra capabilities. A dedicated website also offers further resources and links to other useful websites.

Designed for students of computer science and engineering as well as of mathematics, the book provides a foundation in the extensive applications of geometry in real world situations.

Users Review

From reader reviews:

William Leininger:

Why don't make it to be your habit? Right now, try to prepare your time to do the important behave, like looking for your favorite guide and reading a guide. Beside you can solve your condition; you can add your knowledge by the e-book entitled Applied Geometry for Computer Graphics and CAD (Springer Undergraduate Mathematics Series). Try to face the book Applied Geometry for Computer Graphics and CAD (Springer Undergraduate Mathematics Series) as your good friend. It means that it can to be your friend when you experience alone and beside regarding course make you smarter than before. Yeah, it is very fortuned in your case. The book makes you considerably more confidence because you can know every little thing by the book. So , we need to make new experience along with knowledge with this book.

Sherry Duncan:

The experience that you get from Applied Geometry for Computer Graphics and CAD (Springer Undergraduate Mathematics Series) will be the more deep you digging the information that hide inside

words the more you get interested in reading it. It doesn't mean that this book is hard to be aware of but Applied Geometry for Computer Graphics and CAD (Springer Undergraduate Mathematics Series) giving you joy feeling of reading. The author conveys their point in a number of way that can be understood through anyone who read it because the author of this guide is well-known enough. This book also makes your current vocabulary increase well. Therefore it is easy to understand then can go with you, both in printed or e-book style are available. We advise you for having this specific Applied Geometry for Computer Graphics and CAD (Springer Undergraduate Mathematics Series) instantly.

Barbara Robbins:

People live in this new moment of lifestyle always make an effort to and must have the time or they will get large amount of stress from both lifestyle and work. So , whenever we ask do people have spare time, we will say absolutely yes. People is human not really a huge robot. Then we ask again, what kind of activity do you have when the spare time coming to an individual of course your answer will unlimited right. Then do you ever try this one, reading publications. It can be your alternative with spending your spare time, the particular book you have read is usually Applied Geometry for Computer Graphics and CAD (Springer Undergraduate Mathematics Series).

Melinda Walton:

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