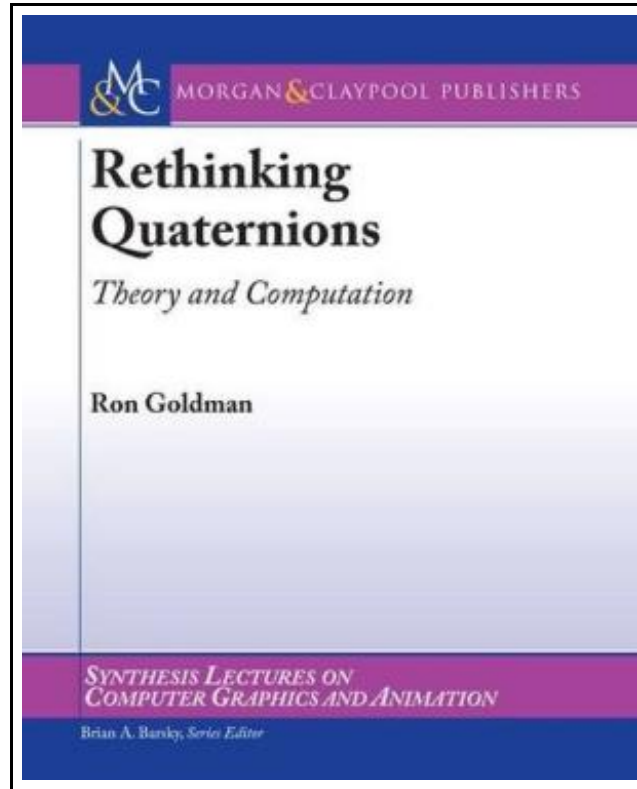


Rethinking Quaternions: Theory and Practice



Filesize: 4.52 MB

Reviews

This pdf is so gripping and intriguing. I could comprehend almost everything using this composed ebook. You are going to like just how the article writer create this ebook.

(Miss Dakota Zulauf)

RETHINKING QUATERNIONS: THEORY AND PRACTICE

[DOWNLOAD](#)

To read **Rethinking Quaternions: Theory and Practice** eBook, remember to refer to the link under and download the document or get access to additional information that are in conjunction with RETHINKING QUATERNIONS: THEORY AND PRACTICE ebook.

Morgan Claypool Publishers, United States, 2010. Paperback. Book Condition: New. 232 x 192 mm. Language: English . Brand New Book. Quaternion multiplication can be used to rotate vectors in three-dimensions. Therefore, in computer graphics, quaternions have three principal applications: to increase speed and reduce storage for calculations involving rotations, to avoid distortions arising from numerical inaccuracies caused by floating point computations with rotations, and to interpolate between two rotations for key frame animation. Yet while the formal algebra of quaternions is well-known in the graphics community, the derivations of the formulas for this algebra and the geometric principles underlying this algebra are not well understood. The goals of this monograph are to provide a fresh, geometric interpretation for quaternions, appropriate for contemporary computer graphics, based on mass-points; to present better ways to visualize quaternions, and the effect of quaternion multiplication on points and vectors in three dimensions using insights from the algebra and geometry of multiplication in the complex plane; to derive the formula for quaternion multiplication from first principles; to develop simple, intuitive proofs of the sandwiching formulas for rotation and reflection; to show how to apply sandwiching to compute perspective projections. In addition to these theoretical issues, we also address some computational questions. We develop straightforward formulas for converting back and forth between quaternion and matrix representations for rotations, reflections, and perspective projections, and we discuss the relative advantages and disadvantages of the quaternion and matrix representations for these transformations. Moreover, we show how to avoid distortions due to floating point computations with rotations by using unit quaternions to represent rotations. We also derive the formula for spherical linear interpolation, and we explain how to apply this formula to interpolate between two rotations for key frame animation. Finally, we explain the role of quaternions in low-dimensional Clifford algebras,...



[Read Rethinking Quaternions: Theory and Practice Online](#)



[Download PDF Rethinking Quaternions: Theory and Practice](#)



[Download ePub Rethinking Quaternions: Theory and Practice](#)

See Also



[PDF] The Pauper & the Banker/Be Good to Your Enemies

Click the web link beneath to read "The Pauper & the Banker/Be Good to Your Enemies" file.

[Read PDF »](#)



[PDF] Genuine] kindergarten curriculum theory and practice(Chinese Edition)

Click the web link beneath to read "Genuine] kindergarten curriculum theory and practice(Chinese Edition)" file.

[Read PDF »](#)



[PDF] Bully, the Bullied, and the Not-So Innocent Bystander: From Preschool to High School and Beyond: Breaking the Cycle of Violence and Creating More Deeply Caring Communities

Click the web link beneath to read "Bully, the Bullied, and the Not-So Innocent Bystander: From Preschool to High School and Beyond: Breaking the Cycle of Violence and Creating More Deeply Caring Communities" file.

[Read PDF »](#)



[PDF] Index to the Classified Subject Catalogue of the Buffalo Library; The Whole System Being Adopted from the Classification and Subject Index of Mr. Melvil Dewey, with Some Modifications .

Click the web link beneath to read "Index to the Classified Subject Catalogue of the Buffalo Library; The Whole System Being Adopted from the Classification and Subject Index of Mr. Melvil Dewey, with Some Modifications ." file.

[Read PDF »](#)



[PDF] How Not to Grow Up: A Coming of Age Memoir. Sort of.

Click the web link beneath to read "How Not to Grow Up: A Coming of Age Memoir. Sort of." file.

[Read PDF »](#)



[PDF] How Not to Kill: Your Spouse, Kids, and Coworkers

Click the web link beneath to read "How Not to Kill: Your Spouse, Kids, and Coworkers" file.

[Read PDF »](#)



[PDF] Shadows Bright as Glass: The Remarkable Story of One Man's Journey from Brain Trauma to Artistic Triumph

Click the link listed below to download "Shadows Bright as Glass: The Remarkable Story of One Man's Journey from Brain Trauma to Artistic Triumph" document.

[Download eBook »](#)



[PDF] Twitter Marketing Workbook: How to Market Your Business on Twitter

Click the link listed below to download "Twitter Marketing Workbook: How to Market Your Business on Twitter" document.

[Download eBook »](#)



[PDF] It's Just a Date: How to Get 'em, How to Read 'em, and How to Rock 'em

Click the link listed below to download "It's Just a Date: How to Get 'em, How to Read 'em, and How to Rock 'em" document.

[Download eBook »](#)



[PDF] From Dare to Due Date

Click the link listed below to download "From Dare to Due Date" document.

[Download eBook »](#)



[PDF] Hitler's Exiles: Personal Stories of the Flight from Nazi Germany to America

Click the link listed below to download "Hitler's Exiles: Personal Stories of the Flight from Nazi Germany to America" document.

[Download eBook »](#)



[PDF] The Well-Trained Mind: A Guide to Classical Education at Home (Hardback)

Click the link listed below to download "The Well-Trained Mind: A Guide to Classical Education at Home (Hardback)" document.

[Download eBook »](#)