

Geometric Algebra with Applications in Engineering (Geometry and Computing)

By Christian Perwass

Download now

Read Online

Geometric Algebra with Applications in Engineering (Geometry and Computing) By Christian Perwass

The application of geometric algebra to the engineering sciences is a young, active subject of research. The promise of this field is that the mathematical structure of geometric algebra together with its descriptive power will result in intuitive and more robust algorithms.

This book examines all aspects essential for a successful application of geometric algebra: the theoretical foundations, the representation of geometric constraints, and the numerical estimation from uncertain data. Formally, the book consists of two parts: theoretical foundations and applications. The first part includes chapters on random variables in geometric algebra, linear estimation methods that incorporate the uncertainty of algebraic elements, and the representation of geometry in Euclidean, projective, conformal and conic space. The second part is dedicated to applications of geometric algebra, which include uncertain geometry and transformations, a generalized camera model, and pose estimation.

Graduate students, scientists, researchers and practitioners will benefit from this book. The examples given in the text are mostly recent research results, so practitioners can see how to apply geometric algebra to real tasks, while researchers note starting points for future investigations. Students will profit from the detailed introduction to geometric algebra, while the text is supported by the author's visualization software, CLUCalc, freely available online, and a website that includes downloadable exercises, slides and tutorials.

Download Geometric Algebra with Applications in Engineering ...pdf

Read Online Geometric Algebra with Applications in Engineeri ...pdf

Geometric Algebra with Applications in Engineering (Geometry and Computing)

By Christian Perwass

Geometric Algebra with Applications in Engineering (Geometry and Computing) By Christian Perwass

The application of geometric algebra to the engineering sciences is a young, active subject of research. The promise of this field is that the mathematical structure of geometric algebra together with its descriptive power will result in intuitive and more robust algorithms.

This book examines all aspects essential for a successful application of geometric algebra: the theoretical foundations, the representation of geometric constraints, and the numerical estimation from uncertain data. Formally, the book consists of two parts: theoretical foundations and applications. The first part includes chapters on random variables in geometric algebra, linear estimation methods that incorporate the uncertainty of algebraic elements, and the representation of geometry in Euclidean, projective, conformal and conic space. The second part is dedicated to applications of geometric algebra, which include uncertain geometry and transformations, a generalized camera model, and pose estimation.

Graduate students, scientists, researchers and practitioners will benefit from this book. The examples given in the text are mostly recent research results, so practitioners can see how to apply geometric algebra to real tasks, while researchers note starting points for future investigations. Students will profit from the detailed introduction to geometric algebra, while the text is supported by the author's visualization software, CLUCalc, freely available online, and a website that includes downloadable exercises, slides and tutorials.

Geometric Algebra with Applications in Engineering (Geometry and Computing) By Christian Perwass Bibliography

- Rank: #2274737 in Books
- Published on: 2008-12-16
- Original language: English
- Number of items: 1
- Dimensions: 9.30" h x .70" w x 6.30" l, 1.45 pounds
- Binding: Hardcover
- 386 pages

Download Geometric Algebra with Applications in Engineering ...pdf

Read Online Geometric Algebra with Applications in Engineeri ...pdf

Download and Read Free Online Geometric Algebra with Applications in Engineering (Geometry and Computing) By Christian Perwass

Editorial Review

Review

From the reviews:

"This book shows how this geometric algebra relates to the more familiar concepts and how it can be applied to some engineering problems. … The book is organized in two parts--five chapters on theory and an equal number on applications. … Scientists and engineers will undoubtedly notice that they have seen cases and applications of the theorems and properties in more specific circumstances … . It will be useful for the nonmathematician … . It would be well worth the effort." (Anthony J. Duben, ACM Computing Reviews, June, 2009)

“The author introduces the principle of outer morphisms as generalizations of linear mappings in geometric algebras. … This book is a very nice, comprehensive and methodically perfected presentation of a new important branch of mathematics. The book shows there is no separation line between theoretical and applied mathematics. Mathematics has to be understood as a monolithic whole – this is one of the messages of this warmly recommended monography.” (Wolfgang Sprößig, Zentralblatt MATH, Vol. 1179, 2010)

“The book under review is an extensive introduction to geometric algebra and its various applications. Both the modern theory and recent results obtained by the author and his collaborators are included. … This book is intended for graduate students, academics and researchers interested in geometric algebra and its applications.” (Georgi Hristov Georgiev, Mathematical Reviews, Issue 2011 j)

Users Review

From reader reviews:

William Leininger:

This book untitled Geometric Algebra with Applications in Engineering (Geometry and Computing) to be one of several books that best seller in this year, here is because when you read this e-book you can get a lot of benefit into it. You will easily to buy that book in the book shop or you can order it through online. The publisher with this book sells the e-book too. It makes you quickly to read this book, since you can read this book in your Mobile phone. So there is no reason to you to past this e-book from your list.

Eleanor Gomez:

Your reading sixth sense will not betray a person, why because this Geometric Algebra with Applications in Engineering (Geometry and Computing) book written by well-known writer we are excited for well how to make book which might be understand by anyone who also read the book. Written within good manner for you, leaking every ideas and composing skill only for eliminate your personal hunger then you still doubt Geometric Algebra with Applications in Engineering (Geometry and Computing) as good book not merely by the cover but also with the content. This is one e-book that can break don't assess book by its deal with, so

do you still needing a different sixth sense to pick this!? Oh come on your studying sixth sense already said so why you have to listening to an additional sixth sense.

Bruce Parisien:

Don't be worry if you are afraid that this book can filled the space in your house, you might have it in e-book approach, more simple and reachable. This Geometric Algebra with Applications in Engineering (Geometry and Computing) can give you a lot of friends because by you taking a look at this one book you have matter that they don't and make you actually more like an interesting person. This specific book can be one of a step for you to get success. This reserve offer you information that probably your friend doesn't learn, by knowing more than additional make you to be great individuals. So , why hesitate? We should have Geometric Algebra with Applications in Engineering (Geometry and Computing).

Robert Delaney:

A lot of people said that they feel fed up when they reading a publication. They are directly felt the idea when they get a half portions of the book. You can choose the actual book Geometric Algebra with Applications in Engineering (Geometry and Computing) to make your own personal reading is interesting. Your own personal skill of reading expertise is developing when you like reading. Try to choose simple book to make you enjoy to study it and mingle the sensation about book and examining especially. It is to be first opinion for you to like to open up a book and go through it. Beside that the guide Geometric Algebra with Applications in Engineering (Geometry and Computing) can to be your brand-new friend when you're truly feel alone and confuse using what must you're doing of the time.

Download and Read Online Geometric Algebra with Applications in Engineering (Geometry and Computing) By Christian Perwass #BWIVHL9YS1X

Read Geometric Algebra with Applications in Engineering (Geometry and Computing) By Christian Perwass for online ebook

Geometric Algebra with Applications in Engineering (Geometry and Computing) By Christian Perwass Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Geometric Algebra with Applications in Engineering (Geometry and Computing) By Christian Perwass books to read online.

Online Geometric Algebra with Applications in Engineering (Geometry and Computing) By Christian Perwass ebook PDF download

Geometric Algebra with Applications in Engineering (Geometry and Computing) By Christian Perwass Doc

Geometric Algebra with Applications in Engineering (Geometry and Computing) By Christian Perwass Mobipocket

Geometric Algebra with Applications in Engineering (Geometry and Computing) By Christian Perwass EPub