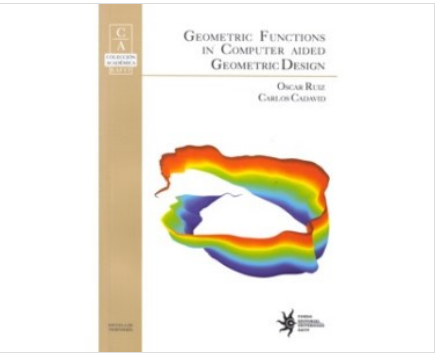
Geometric functions in computer aided geometric design

Autor

Óscar Ruiz

Sinopsis

It is usual that existing material on computer aided geometric design oscillates between over-simplification for programmers and practitioners and over formalism for scientific or academic readers. The first type of publications suppresses the taxonomy and properties of the mathematical concepts discussed when seeking straightforward notation and procedures. The second type of materials in thorough in the mathematical concepts at the expense of increasingly complicated notation and sacrifice of clear procedures for the reader.This book intends to be a compromise between the aforementioned extremes. It recalls basic concepts on functions, relations, transformations, matrices and groups and makes evident their impact in the engineering properties of projections, rotations, translations, perspectives, and so on. The material is of interest for computer scientists and electrical, mechanical, production, mathematical and physics engineers. In particular, it gives valuable insight into robotics, computer vision, design, manufacturing, kinematics and dynamics from a practical point of view while keeping contact whit the underlying decisive mathematical properties of the objects and transformations handled.



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The exercises and examples discussed in this book were stated, solved, documented and illustrated under the supervision of professors Oscar Ruiz and Carlos Cadavid during the years 2004 to 2007. Scenarios for such a work were the courses introduction to CAD CAM Systems and Geometric Modeling and the activities in the CAD CAM CAE laboratory at EAFIT University.This book intends to be a compromise between the aforementioned extremes. It recalls basic concepts on functions, relations, transformations, matrices and groups and makes evident their impact in the engineering properties of projections, rotations, translations, perspectives, and so on. The material is of interest for computer scientists and electrical, mechanical, production, mathematical and physics engineers. In particular, it gives valuable insight into robotics, computer vision, design, manufacturing, kinematics and dynamics from a practical point of view while keeping contact whit the underlying decisive mathematical properties of the objects and transformations handled.The exercises and examples discussed in this book were stated, solved, documented and illustrated under the supervision of professors Oscar Ruiz and Carlos Cadavid during the years 2004 to 2007. Scenarios for such a work were the courses introduction to CAD CAM Systems and Geometric Modeling and the activities in the CAD CAM CAE laboratory at EAFIT University.The exercises and examples discussed in this book were stated, solved, documented and illustrated under the supervision of professors Oscar Ruiz and Carlos Cadavid during the years 2004 to 2007. Scenarios for such a work were the courses introduction to CAD CAM Systems and Geometric Modeling and the activities in the CAD CAM CAE laboratory at EAFIT University.

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Sobre el autor

Óscar Ruiz

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