Open Geometry: OpenGL® + Advanced Geometry

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Synopsis

At once a programming course that emphasises object-oriented thinking as well as a well-documented, versatile, and robust geometry library. All of the relevant geometry is covered in depth to provide a good understanding of the background to this topic. Many of the most common intersection problems and measuring tasks are covered, with the authors discussing the creation of arbitrary geometric objects and the use of Boolean operations to create more general solid objects. As a result, all those looking for an in-depth introduction to graphics programming will find this a solid, hands-on text.

Book Information

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Customer Reviews

I used this book as a textbook to teach a graduate course in "Geometry and Computer Graphics" at San Jose State University. The course was a success, and the book was crucial to that success. The book describes, and gives examples of the use of, the Open Geometry programming system, developed by the authors. You get a copy of this system on a CD-ROM with the book. Indeed, perhaps I should say that you get a copy of the book with this CD-ROM. Open Geometry is a collection of C++ classes making it easy to program advanced three-dimensional graphics. For example, one of the sample programs is called "The Blue Planet and its Only Moon", and shows two colored and beautifully shaded spheres, with one in animated motion around the other. The shading changes as the moon orbits. The program to produce this fits on one small screen, and begins with variable declarations like "Sphere Earth;". The architecture of Open Geometry is based on C++
classes that correspond to geometrical objects. Thus, there are classes for points, vectors, lines, planes, polygons, circles, spheres, parametric surfaces, polyhedra, etc. The actual rendering of these objects is accomplished by OpenGL, a cross-platform graphics library that is implemented on both UNIX and Windows, as well as the Silicon Graphics machines where it originated. We used the Windows version of Open Geometry, which comes with a nice Windows interface. It is distributed as source code, so you get a project to open in Microsoft Visual C++. You can add your own source code to that project (or a copy of it). For most of the class programming projects, a knowledge of Windows programming was optional.

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