

Where to Find More Information about Computer Graphics and Scientific Visualization

Mike Bailey
Oregon State University

1. References

1.1 General Computer Graphics

SIGGRAPH Online Bibliography Database:

<http://www.siggraph.org/publications/bibliography>

Steve Cunningham, *Computer Graphics: Programming in OpenGL for Visual Communication*, Prentice-Hall, 2007

Francis Hill and Stephen Kelley, *Computer Graphics Using OpenGL*, 3rd Edition, Prentice Hall, 2006.

Edward Angel, *Interactive Computer Graphics: A Top-down Approach with OpenGL*, 5th Edition, Addison-Wesley, 2008.

Alan Watt, *3D Computer Graphics*, 3rd Edition, Addison-Wesley, 2000.

Peter Shirley, *Fundamentals of Computer Graphics*, 2nd Edition, AK Peters, 2005.

Andrew Glassner, *Graphics Gems*, Academic Press, 1990.

James Arvo, *Graphics Gems 2*, Academic Press, 1991.

David Kirk, *Graphics Gems 3*, Academic Press, 1992.

Paul Heckbert, *Graphics Gems 4*, Academic Press, 1994.

Alan Paeth, *Graphics Gems 5*, Academic Press, 1995.

Jim Blinn, *A Trip Down the Graphics Pipeline*, Morgan Kaufmann, 1996.

Jim Blinn, *Dirty Pixels*, Morgan Kaufmann, 1998.

David Rogers, *Procedural Elements for Computer Graphics*, McGraw-Hill, 1997.

SIGGRAPH Conference Final program.

1.2 Math and Geometry

Michael Mortenson, *Geometric Transformations for 3D Modeling*, 2nd Edition, Industrial press, 2007.

Michael Mortenson, *Geometric Modeling*, John Wiley & Sons, 2006.

- Eric Lengyel, *Mathematics for 3D Game Programming and Computer Graphics*, Charles River Media, 2002.
- Jean Gallier, *Curves and Surfaces in Geometric Modeling*, Morgan Kaufmann, 2000.
- Walter Taylor, *The Geometry of Computer Graphics*, Wadsworth & Brooks/Cole, 1992.
- Gerald Farin, *Curves and Surfaces for Computer Aided Geometric Design*, 3rd Edition, Academic Press, 2001.
- Gerald Farin and Dianne Hansford, *The Geometry Toolbox for Graphics and Modeling*, AK Peters, 1998.
- Joe Warren and Henrik Weimer, *Subdivision Methods for Geometric Design: A Constructive Approach*, Morgan Kaufmann, 2001.
- Barrett O'Neil, *Elementary Differential Geometry*, Academic Press, 1997.
- Joseph O'Rourke, *Computational Geometry in C*, Cambridge University Press, 1996.
- Christopher Hoffman, *Geometric & Solid Modeling*, Morgan Kaufmann, 1989.
- I.D. Faux and M.J. Pratt, *Computational Geometry for Design and Manufacture*, Ellis-Horwood, 1979.
- Eric Stollnitz, Tony DeRose, and David Salesin, *Wavelets for Computer Graphics*, Morgan-Kaufmann, 1996.
- Ronen Barzel, *Physically-Based Modeling for Computer Graphics*, Academic Press, 1992.
- David Rogers and J. Alan Adams, *Mathematical Elements for Computer Graphics*, McGraw-Hill, 1989.
- John Snyder, *Generative Modeling for Computer Graphics and Computer Aided Design*, Academic Press, 1992.

1.3 Scientific Visualization

- Klaus Engel, Markus Hadwiger, Joe Kniss, Christof Rezk-Salama, and Daniel Weiskopf, *Real-Time Volume Graphics*, A.K. Peters, 2006.
- Christopher Johnson and Charles Hansen, *The Visualization Handbook*, Elsevier Academic Press, 2005.
- David Thompson, Jeff Braun, and Ray Ford, *OpenDX: Paths to Visualization*, Visualization and Imagery Solutions, Inc., 2001.
- Chandrajit Bajaj, *Data Visualization Techniques*, John Wiley & Sons, 1999.
- Min Chen, Arie Kaufman, and Roni Yagel, *Volume Graphics*, Springer-Verlag, 2000.

William Schroeder, Ken Martin, and Bill Lorensen, *The Visualization Toolkit*, 3rd Edition, Prentice-Hall, 2004.

Luis Ibanez and William Schroeder, *The ITK Software Guide: The Insight Segmentation and Registration Toolkit (version 1.4)*, Prentice-Hall, 2003.

Greg Nielson, Hans Hagen, and Heinrich Müller, *Scientific Visualization: Overviews, Methodologies, Techniques*, IEEE Computer Society Press, 1997.

Lenny Lipton, *The CrystalEyes Handbook*, StereoGraphics Corporation, 1991.

Brand Fortner, *The Data Handbook: A Guide to Understanding the Organization and Visualization of Technical Data*, Spyglass, 1992.

William Kaufmann and Larry Smarr, *Supercomputing and the Transformation of Science*, Scientific American Library, 1993.

Robert Wolff and Larry Yaeger, *Visualization of Natural Phenomena*, Springer-Verlag, 1993.

Peter Keller and Mary Keller, *Visual Cues: Practical Data Visualization*, IEEE Press, 1993.

1.4 Shaders

Mike Bailey and Steve Cunningham, *Computer Graphics Shaders: Theory and Practice*, AK Peters, 2009.

Randi Rost, *OpenGL Shading Language*, Addison-Wesley, 2006 (2nd edition).

Steve Upstill, *The RenderMan Companion*, Addison-Wesley, 1990.

Tony Apodaca and Larry Gritz, *Advanced RenderMan: Creating CGI for Motion Pictures*, Morgan Kaufmann, 1999.

Saty Raghavachary, *Rendering for Beginners: Image Synthesis using RenderMan*, Focal Press, 2005.

Randima Fernando, *GPU Gems*, NVIDIA, 2004.

Matt Pharr, Randima Fernando, *GPU Gems 2*, NVIDIA, 2005.

Hubert Nguyen, *GPU Gems 3*, NVIDIA, 2007.

<http://www.clockworkcoders.com/ogls1>

1.5 Gaming

<http://gamedeveloper.texterity.com/gamedeveloper/2008careerguide/>

David Hodgson, Bryan Stratten, and Alice Rush, *Paid to Play: An Insider's Guide to Video Game Careers*, Prima, 2006.

Alan Watt and Fabio Policarpo, *Advanced Game Development with Programmable Graphics Hardware*, AK Peters, 2005.

Jacob Habgood and Mark Overmars, *The Game Maker's Apprentice*, Apress, 2006.

David Eberly, *3D Game Engine Design: A Practical Approach to Real-Time Computer Graphics*, Morgan Kaufmann, 2006.

Alan Watt and Fabio Policarpo, *3D Games: Real-time Rendering and Software Technology*, Addison-Wesley, 2001.

Eric Lengyel, *Mathematics for 3D Game Programming and Computer Graphics*, Charles River Media, 2002.

David Bourg, *Physics for Game Developers*, O'Reilly and Associates, 2002.

Munlo Coutinho, *Dynamic Simulations of Multibody Systems*, Springer Verlag, 2001.

Mark DeLoura, *Game Programming Gems*, Charles River Media, 2000.

Mark DeLoura, *Game Programming Gems 2*, Charles River Media, 2001.

Mark DeLoura, *Game Programming Gems 3*, Charles River Media, 2002.

<http://www.gamedev.net>

<http://www.gamasutra.net>

1.6 Color and Perception

Maureen Stone, *A Field Guide to Digital Color*, AK Peters, 2003.

Roy Hall, *Illumination and Color in Computer Generated Imagery*, Springer-Verlag, 1989.

David Travis, *Effective Color Displays*, Academic Press, 1991.

L.G. Thorell and W.J. Smith, *Using Computer Color Effectively*, Prentice Hall, 1990.

Edward Tufte, *The Visual Display of Quantitative Information*, Graphics Press, 1983.

Edward Tufte, *Envisioning Information*, Graphics Press, 1990.

Edward Tufte, *Visual Explanations*, Graphics Press, 1997.

Edward Tufte, *Beautiful Evidence*, Graphics Press, 2006.

Howard Resnikoff, *The Illusion of Reality*, Springer-Verlag, 1989.

1.7 Rendering

Andrew Glassner, *Principles of Digital Image Synthesis*, Morgan Kaufmann, 1995.

Michael Cohen and John Wallace, *Radiosity and Realistic Image Synthesis*, Morgan-Kaufmann, 1993.

Andrew Glassner, *An Introduction to Ray Tracing*, Academic Press, 1989.

Rosalee Wolfe, *3D Graphics: A Visual Approach*, Oxford Press.

Ken Joy et al, *Image Synthesis*, IEEE Computer Society Press, 1988.

1.8 Images

David Ebert et al, *Texturing and Modeling*, 2nd Edition, Academic Press, 1998.

Alan Watt and Fabio Policarpo, *The Computer Image*, Addison-Wesley, 1998.

Ron Brinkman, *The Art and Science of Digital Compositing*, Morgan Kaufmann, 1999.

John Miano, *Compressed Image File Formats*, Addison-Wesley, 1999.

1.9 Animation

Alan Watt and Mark Watt, *Advanced Animation and Rendering Techniques*, Addison-Wesley, 1998.

Nadia Magnenat Thalmann and Daniel Thalmann, *Interactive Computer Animation*, Prentice-Hall, 1996.

Philip Hayward and Tana Wollen, *Future Visions: New Technologies of the Screen*, Indiana University Press, 1993.

1.10 Virtual Reality

John Vince, *Virtual Reality Systems*, Addison-Wesley, 1995.

1.11 The Web

Don Brutzman and Leonard Daly, *X3D: Extensible 3D Graphics for Web Authors*, Morgan Kaufmann, 2007

Rémi Arnaud and Mark Barnes, *Collada – Sailing the Gulf of 3D Digital Content Creation*, AK Peters, 2006.

Gene Davis, *Learning Java Bindings For OpenGL (JOGL)*, AuthorHouse, 2004.

Andrea Ames, David Nadeau, John Moreland, *The VRML 2.0 Sourcebook*, John Wiley & Sons, 1997.

Bruce Eckel, *Thinking in Java*, Prentice-Hall, 1998.

David Flanagan, *Java in a Nutshell*, O'Reilly & Associates, 5th edition, 2005.

David Flanagan, *Java Examples in a Nutshell*, O'Reilly & Associates, 3rd edition, 2004.

Henry Sowizral, Kevin Rushforth, and Michael Deering, *The Java 3D API Specification*, Addison-Wesley, 1998.

Rasmus Lerdorf and Kevin Tatroe, *Programming PHP*, O'Reilly, 2002.

Yukihiro Matsumoto, *Ruby in a Nutshell*, O'Reilly, 2003.

1.12 Stereographics

David McAllister, *Stereo Computer Graphics and Other True 3D Technologies*, Princeton University Press, 1993.

Shab Levy, *Stereoscopic Imaging: A Practical Guide*, Gravitrax Creations, 2008.

1.13 Graphics Miscellaneous

OpenGL 2.0 Reference Manual, Addison-Wesley, 2006.

OpenGL 2.0 Programming Guide, Addison-Wesley, 2005 (5th edition).

Aaftab Munshi, Dan Ginsburg, and Dave Shreiner, *OpenGL ES 2.0*, Addison-Wesley, 2008.

Tom McReynolds and David Blythe, *Advanced Graphics Programming Using OpenGL*, Morgan Kaufmann, 2005.

Edward Angel, *OpenGL: A Primer*, Addison-Wesley, 2002.

Andrew Glassner, *Recreational Computer Graphics*, Morgan Kaufmann, 1999.

Anne Spalter, *The Computer in the Visual Arts*, Addison-Wesley, 1999.

Jef Raskin, *The Humane Interface*, Addison-Wesley, 2000.

Ben Shneiderman, *Designing the User Interface*, Addison-Wesley, 1997.

Clark Dodsworth, *Digital Illusion*, Addison-Wesley, 1997.

Isaac Victor Kerlow, *The Art of 3-D: Computer Animation and Imaging*, 2000.

Isaac Victor Kerlow and Judson Rosebush, *Computer Graphics for Designers and Artists*, Van Nostrand Reinhold, 1986.

Mehmed Kantardzic, *Data Mining: Concepts, Models, Methods, and Algorithms*, Wiley, 2003.

William Press, Saul Teukolsky, William Vetterling, and Brian Flannery, *Numerical Recipes in C*, Second Edition, Cambridge University Press, 1997.

James Skakoon and W. J. King, *The Unwritten Laws of Engineering*, ASME Press, 2001.

1.14 Software Engineering

Shari Lawrence Pfleeger and Joanne Atlee, *Software Engineering Theory and Practice*, Prentice Hall, 2006.

Tom Demarco and Timothy Lister, *Waltzing with Bears*, Dorset House Publishing, 2003.

Erich Gamma, Richard Helm, Ralph Johnson, and John M. Vlissides, *Design Patterns: Elements of Reusable Object-Oriented Software*, Addison-Wesley, 1994.

1.15 Parallel Programming

Maurice Herlihy and Nir Shavit, *The Art of Multiprocessor Programming*, Morgan Kaufmann, 2008.

James Reinders, *Intel Threading Building Blocks*, O'Reilly, 2007.

Bradford Nichols, Dick Buttlar, and Jacqueline ProudxFarrell, *Pthreads Programming*, O'Reilly, 1998.

Rohit Chandra, Leonardo Dagun, Dave Kohr, Dror Maydan, Jeff McDonald, Ramesh Menon, *Parallel Programming in OpenMP*, Morgan Kaufmann, 2001.

2. Periodicals

Computer Graphics and Applications: published by IEEE
(<http://www.computer.org>, 714-821-8380)

Computer Graphics World: published by Pennwell
(<http://www.cgw.com>, 603-891-0123)

Journal of Graphics Tools: published by A.K. Peters
(<http://www.akpeters.com>, 617-235-2210)

Game Developer: published by CMP Media
(<http://www.gdmag.com>, 415-905-2200)
(Once a year publishes the *Game Career Guide*.)

Computer Graphics Quarterly: published by ACM SIGGRAPH
(<http://www.siggraph.org>, 212-869-7440)

Computer Graphics Forum., published by Eurographics
(<http://www.eurographics.org/EG/Publications/CGF>)

Computers & Graphics, published by Elsevier
(<http://www.elsevier.com/locate/cag>)

Transactions on Visualization and Computer Graphics: published by IEEE

(<http://www.computer.org>, 714-821-8380)

Transactions on Graphics: published by ACM
(<http://www.acm.org>, 212-869-7440)

Cinefex
(<http://www.cinefex.com>, 951-781-1917)

3. Professional organizations

ACM..... Association for Computing Machinery
<http://www.acm.org>
212-869-7440

SIGGRAPH..... ACM Special Interest Group on Computer Graphics
<http://www.siggraph.org>
212-869-7440

EuroGraphics... European Association for Computer Graphics
<http://www.eg.org>
Fax: +41-22-757-0318

IEEE Institute of Electrical and Electronic Engineers
<http://www.computer.org>
202-371-0101

SIGCHI..... ACM Special Interest Group on Computer-Human Interfaces
<http://www.acm.org/sigchi>
212-869-7440

NAB National Association of Broadcasters
<http://www.nab.org>
800-521-8624

ASME..... American Society of Mechanical Engineers
<http://www.asme.org>
800-THE-ASME

IGDA..... International Game Developers Association
<http://www.igda.org>
856-423-2990

4. Conferences

ACM SIGGRAPH:
2009: New Orleans, LA – August 3-7
2010: Los Angeles, CA – July 26-30
2011: Vancouver, BC – August 8-12
<http://www.siggraph.org/s2009>

SIGGRAPH Asia:

2009: Yokohama, Japan – December 16-19
2010: Seoul, Korea

IEEE Visualization:

2009: Atlantic City, NJ – October 10-16
<http://vis.computer.org>

Eurographics

2009: Munich, Germany – March 30–April 3
<http://www.eurographics2009.de>

Game Developers Conference:

2010: San Francisco, CA
<http://www.gdconf.com>

EforAll:Expo

2009: Los Angeles, CA
<http://www.eforalleexpo.com>

ASME International Design Engineering Technical Conferences (includes the Computers and Information in Engineering conference):

2009: San Diego – August 30–September 2
<http://www.asmeconferences.org/idetc09>

National Association of Broadcasters (NAB):

2010: Las Vegas, NV – April 9-15
<http://www.nab.org>

ACM SIGCHI:

2010: Atlanta, GA – April 10-15
<http://www.acm.org/sigchi>

ACM SIGARCH / IEEE Supercomputing:

2009: Portland, OR -- November 14-20
<http://www.supercomputing.org>

5. Graphics Performance Characterization

The GPC web site tabulates graphics display speeds for a variety of vendors' workstation products. To get the information, visit:

<http://www.spec.org/benchmarks.html#gwpg>