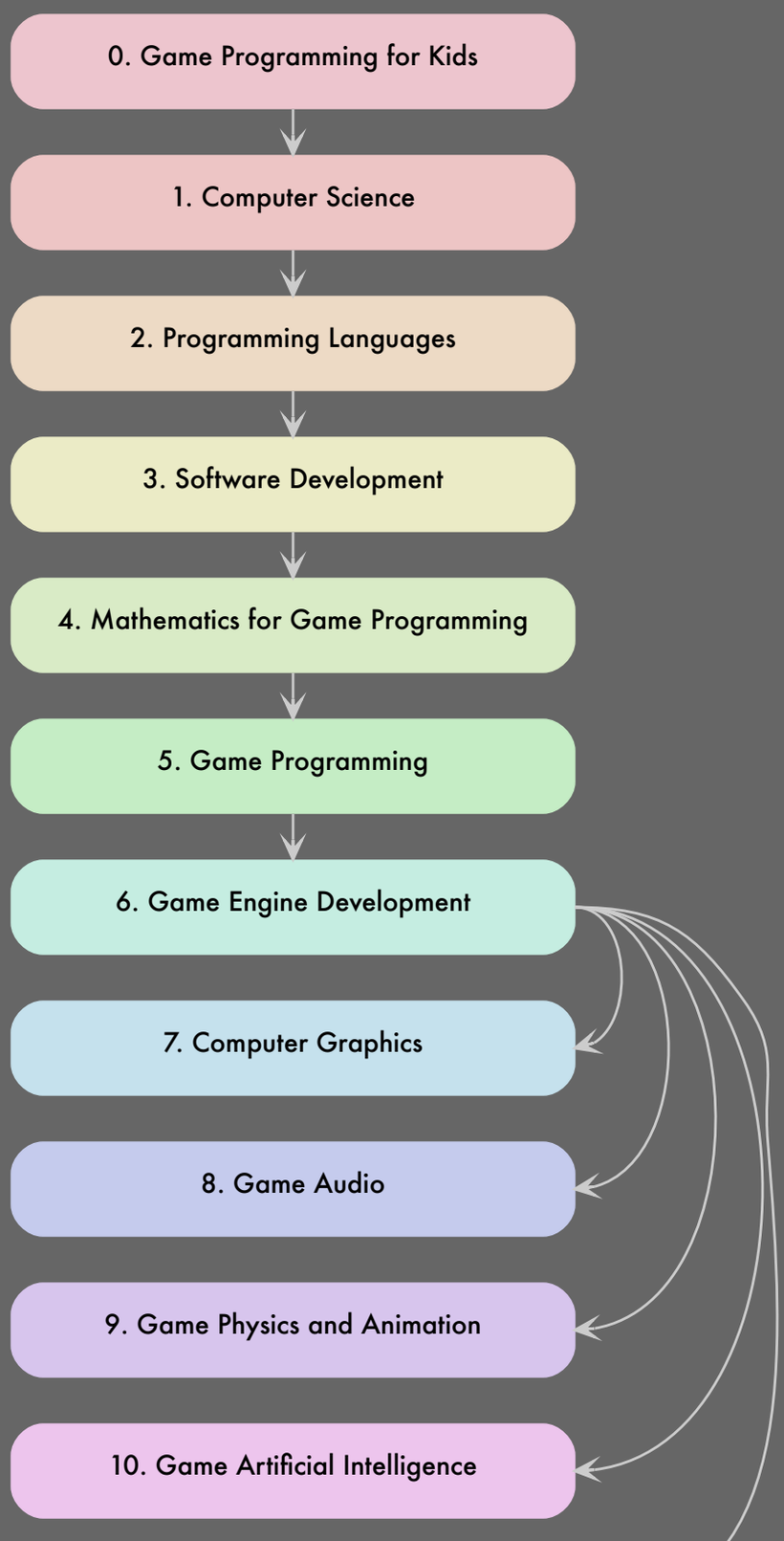
A STUDY PATH FOR
GAME PROGRAMMER

Milo Yip

2017/7/26

https://github.com/miloyip/game-programmer



11. Multiplayer Game Programming

Legends

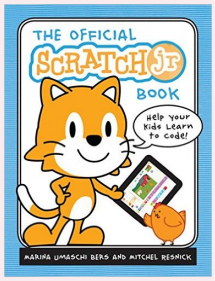
Recommended Path

Optional Path

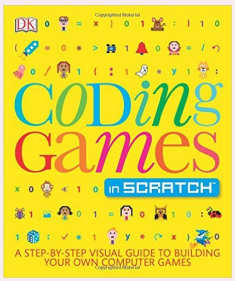
0. Game Programming for Kids

Beginning from Age of 5

Beginning from Age of 8

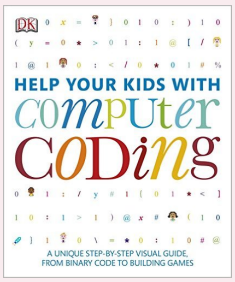


The Official ScratchJr Book (2015)



Coding Games in Scratch (2015)

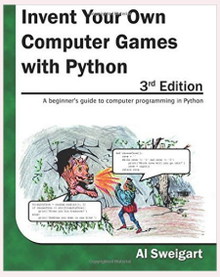
Super Scratch Programming Adventure! (2013)



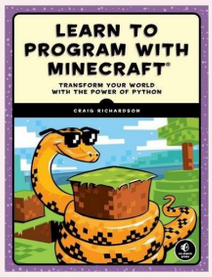
Help Your Kids with Computer Coding (2015)

Learn to Program with Scratch (2014)

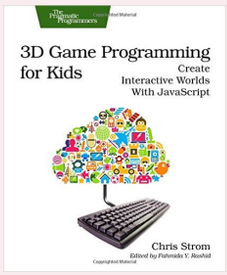
Intermediate Game Programming for Kids



Invent Your Own Computer Games with Python 3rd Ed (2015)



Learn to Program with Minecraft (2015)



3D Game Programming for Kids (2013)

Making Games with Python & Pygame (2012)

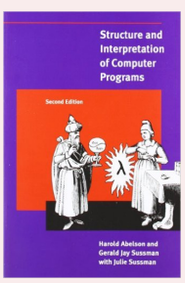
Adventures in Minecraft (2014)

1. Computer Science

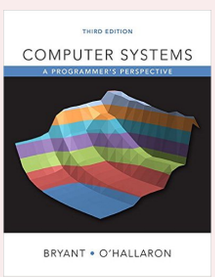
CS Foundation

Algorithm

Mathematics for CS

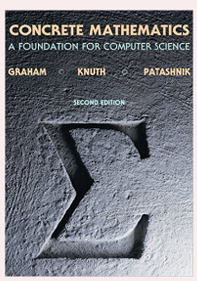


Structure and Interpretation of Computer Programs (SICP) 2nd Ed (1996)

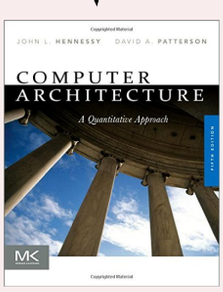


Computer Systems (CSAPP) 3rd Ed (2015)

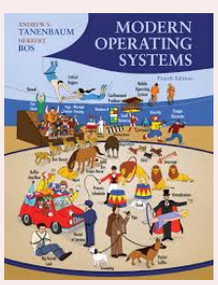
Algorithms 4th Ed (2011)



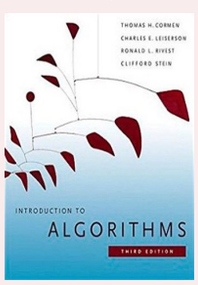
Concrete Mathematics 2nd Ed (1994)



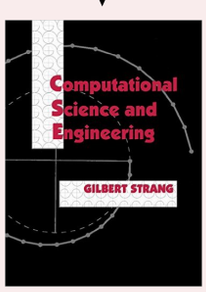
Computer Architecture (CAAQA) 5th Ed (2011)



Modern Operating System (MOS) 4th Ed (2014)

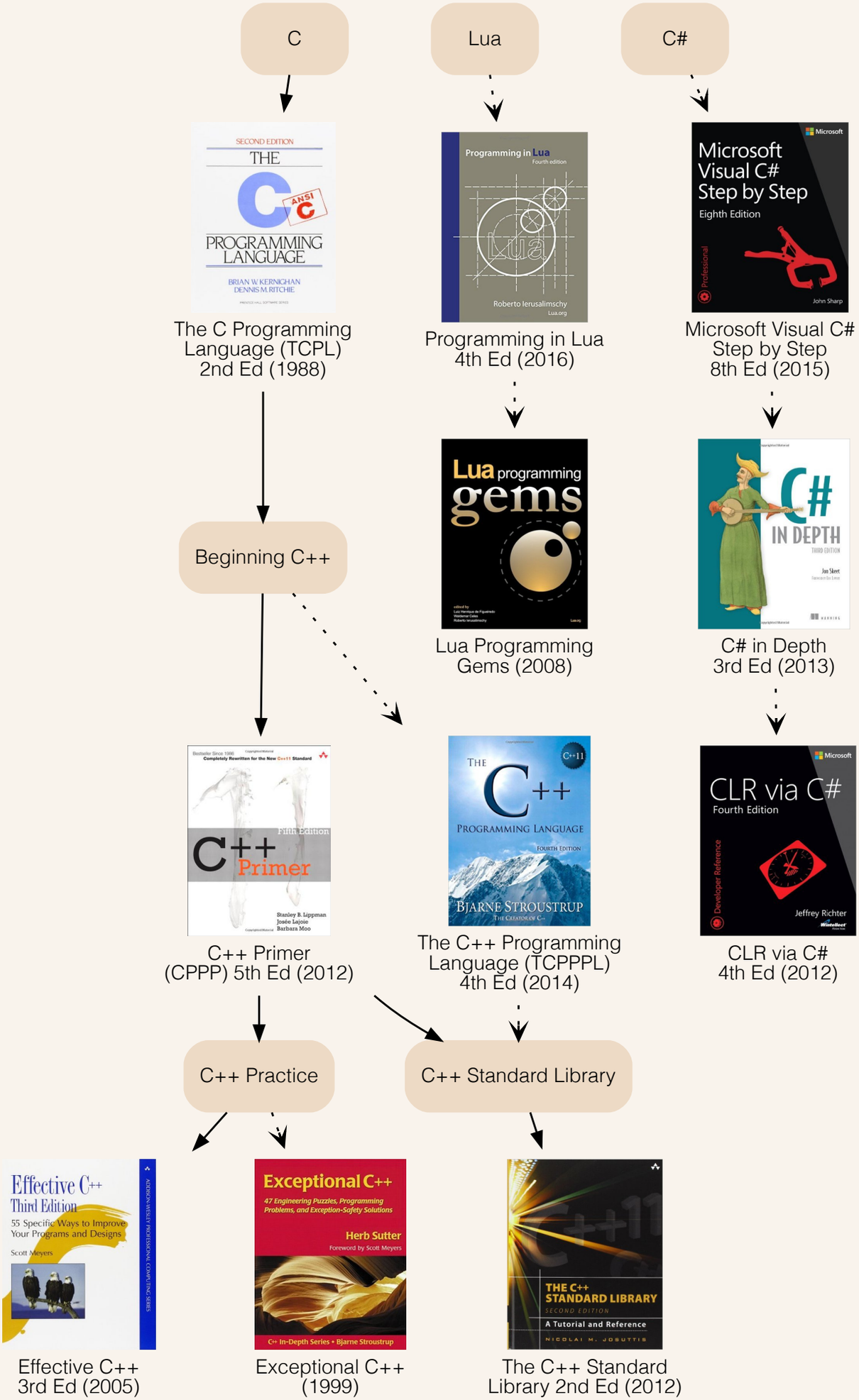


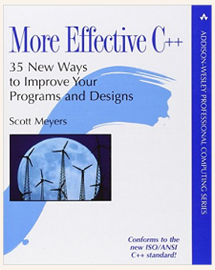
Introduction to Algorithms (CLRS) 3rd Ed (2009)



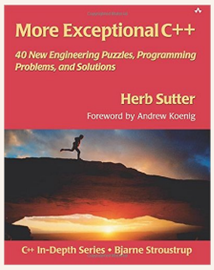
Computational Science and Engineering (2007)

2. Programming Languages

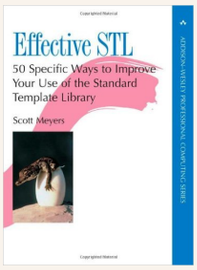




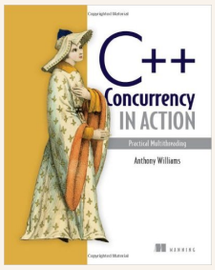
More Effective C++ (1996)



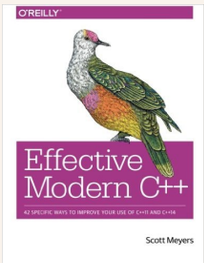
More Exceptional C++ (2001)



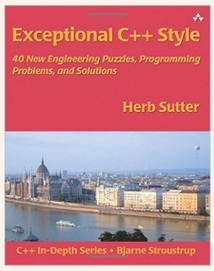
Effective STL (2001)



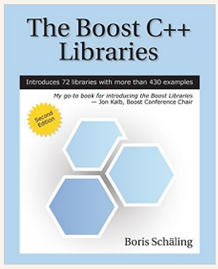
C++ Concurrency in Action (2012)



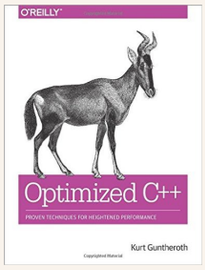
Effective Modern C++ (2014)



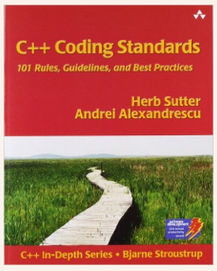
Exceptional C++ Style (2004)



The Boost C++ Libraries 2nd Ed (2014)

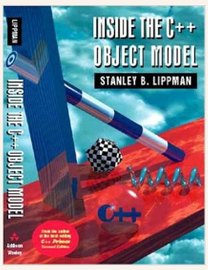


Optimized C++ (2016)

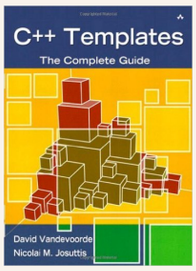


C++ Coding Standards (2004)

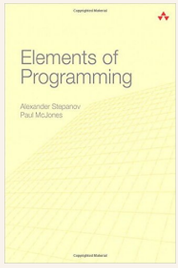
Advanced C++



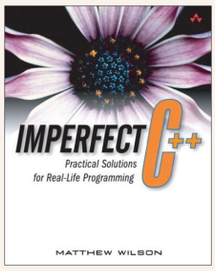
Inside the C++ Object Model (1996)



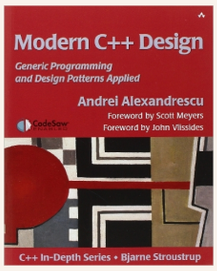
C++ Templates (2002)



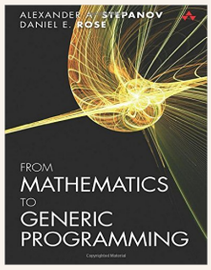
Elements of Programming (2009)



Imperfect C++ (2004)



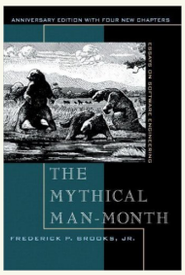
Modern C++ Design (2001)



From Mathematics to Generic Programming (2014)

3. Software Development

Beginning Software Development

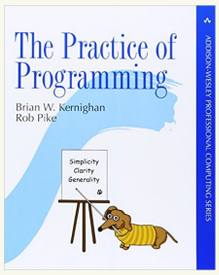


The Mythical Man-Month
2nd Ed (1995)

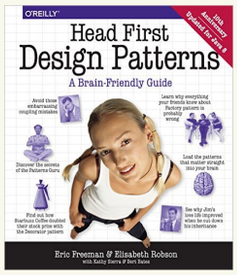
Practice

Design Pattern

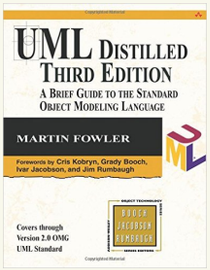
UML



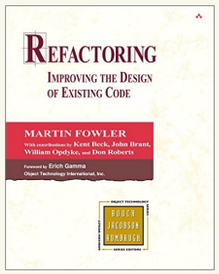
The Practice of
Programming (1999)



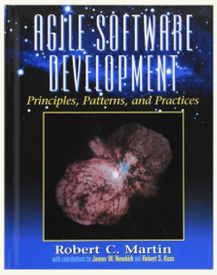
Head First
Design Patterns (2004)



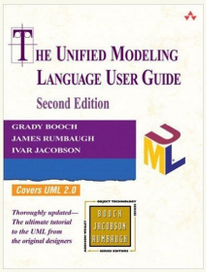
UML Distilled
3rd Ed (2003)



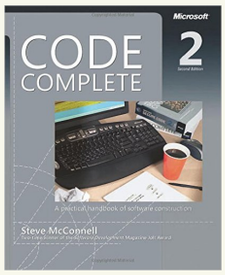
Refactoring (1999)



Agile Software
Development (2002)

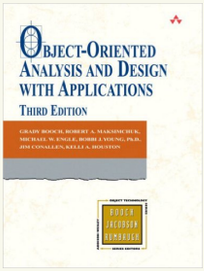


The Unified Modeling
Language User Guide
2nd Ed (2005)

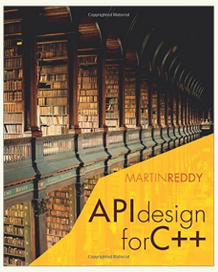


Code Complete 2 (2004)

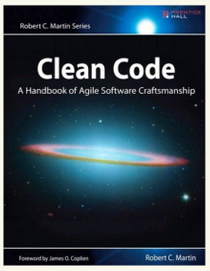
Design Patterns (1994)



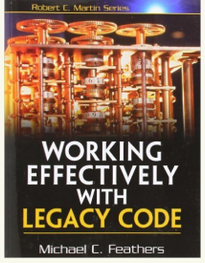
Object-Oriented Analysis
and Design with Applications
3rd Ed (2007)



API Design for C++ (2011)



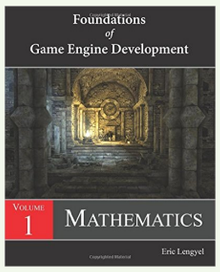
Clean Code (2008)



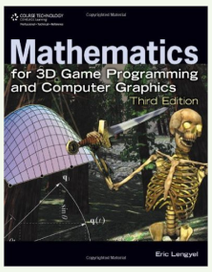
Working Effectively with Legacy Code (2004)

4. Mathematics for Game Programming

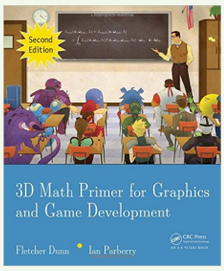
Beginning Mathematics for Game Programming



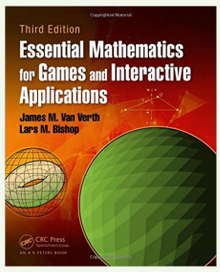
Foundations of Game Engine Development, Vol 1: Mathematics (2016)



Mathematics for 3D Game Programming and Computer Graphics 3rd Ed (2011)

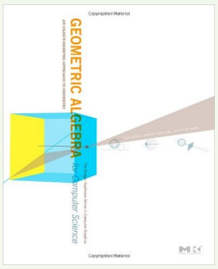


3D Math Primer for Graphics and Game Development 2nd Ed (2011)

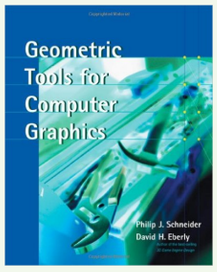


Essential Mathematics for Games and Interactive Applications 3rd Ed (2011)

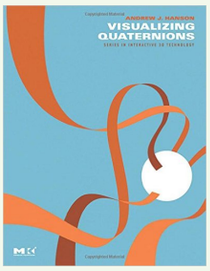
Advanced Mathematics for Game Programming



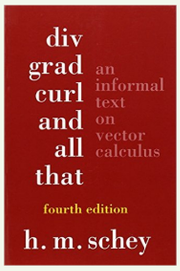
Geometric Algebra for Computer Science (2007)



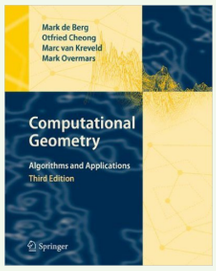
Geometric Tools for Computer Graphics (2002)



Visualizing Quaternions (2006)

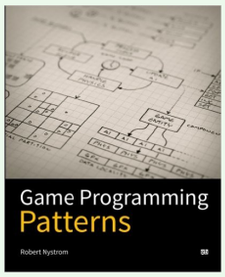


Div, Grad, Curl and all That 4th Ed (2004)

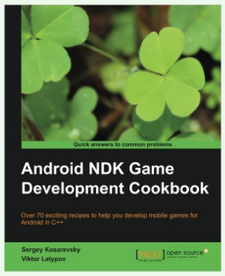


Computational Geometry 3rd Ed (2008)

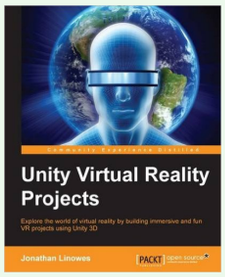
5. Game Programming



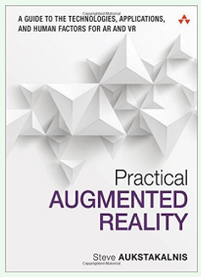
Game Programming Patterns (2014)



Android NDK Game Development Cookbook (2013)



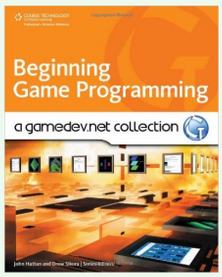
Unity Virtual Reality Projects (2015)



Practical Augmented Reality (2016)

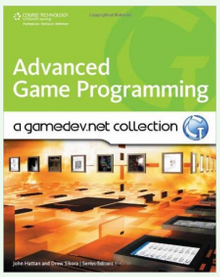
Game Programming Golden Rules (2004)

Game Programming Articles

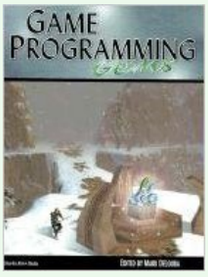


Beginning Game Programming (2009)

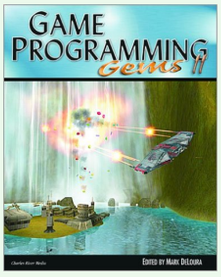
Best of Game Programming Gems (2008)



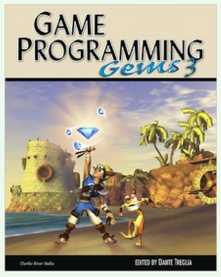
Advanced Game Programming (2009)



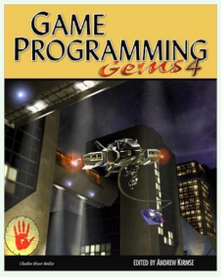
Game Programming Gems (2000)



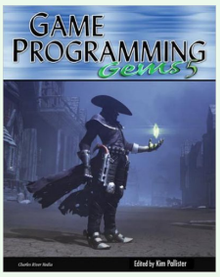
Game Programming Gems (2001)



Game Programming Gems (2002)

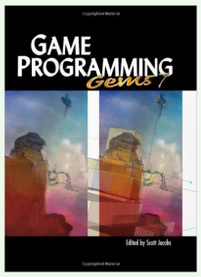


Game Programming Gems (2004)

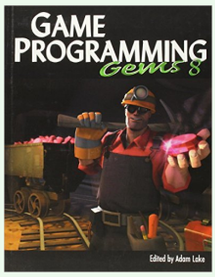


Game Programming Gems (2005)

Game Programming Gems (2006)



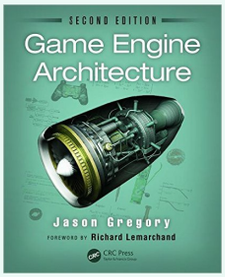
Game Programming Gems (2008)



Game Programming Gems (2010)

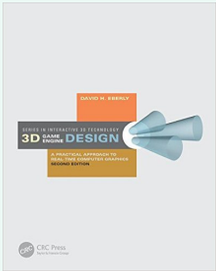
6. Game Engine Development

Beginning Game Engine Development



Game Engine Architecture (GEA) 2nd Ed (2014)

3D Game Engine Architecture (2004)



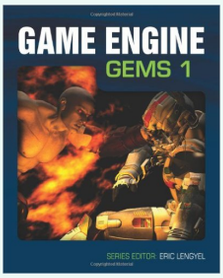
3D Game Engine Design 2nd Ed (2006)

Game Engine Articles

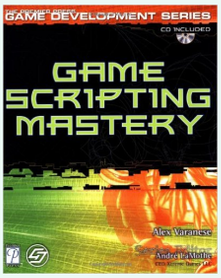
Script Engine

Optimization

Tool Development

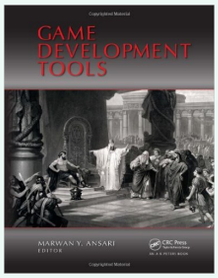


Game Engine Gems 1 (2010)



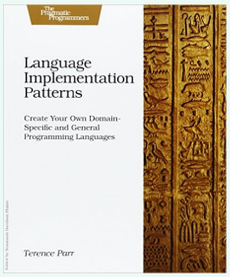
Game Scripting Mastery (2002)

Video Game Optimization (2010)

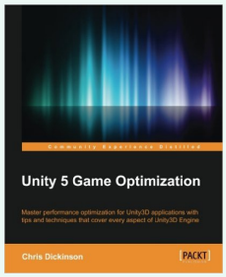


Game Development Tools (2011)

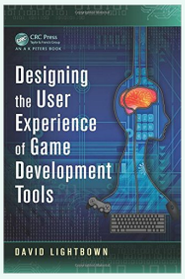
Game Engine Gems 2 (2011)



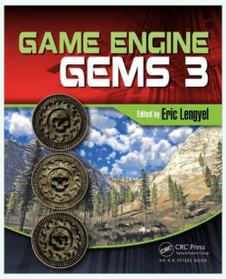
Language Implementation Patterns (2010)



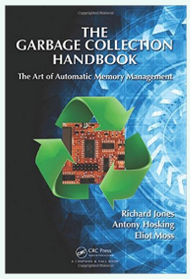
Unity 5 Game Optimization (2015)



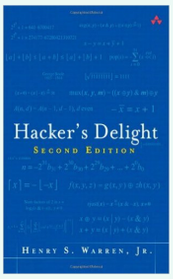
Designing the User Experience of Game Development Tools (2015)



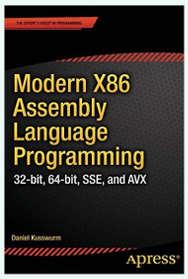
Game Engine Gems 3 (2016)



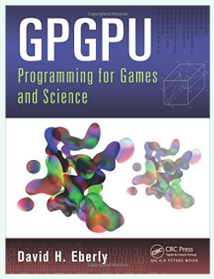
The Garbage Collection Handbook (2011)



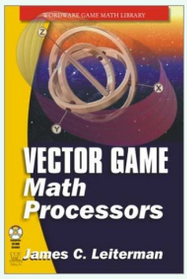
Hacker's Delight 2nd Ed (2012)



Modern X86 Assembly Language Programming (2014)



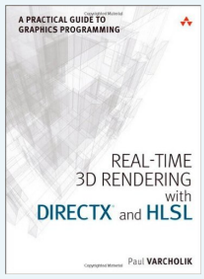
GPGPU Programming for Games and Science (2014)



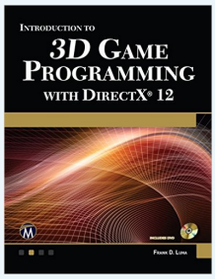
Vector Games Math Processors (2002)

7. Computer Graphics (CG)

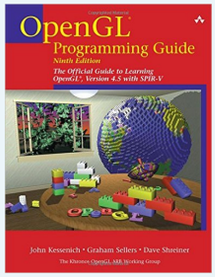
Beginning CG Programming



Real-Time 3D Rendering with DirectX and HLSL (2014)

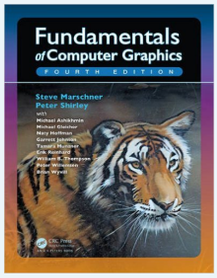


Introduction to 3D Game Programming with DirectX 12 (2016)

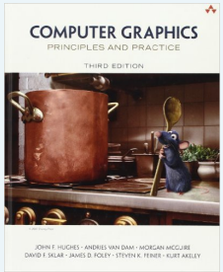


OpenGL Programming Guide 9th Ed (2016)

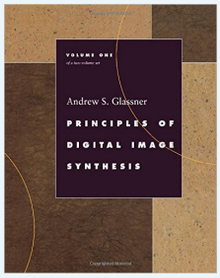
Beginning CG theory



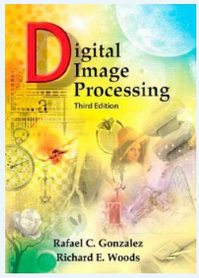
Fundamentals of Computer Graphics 4th Ed (2015)



Computer Graphics Principles and Practice (CGP&P) 3rd Ed (2013)



Principles of Digital Image Synthesis (PODIS) (1995)

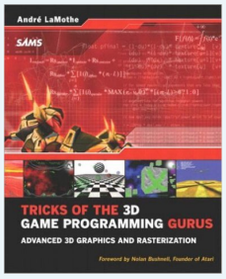


Digital Image Processing (DIP) 3rd Ed (2007)

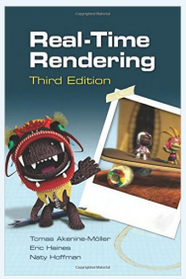
Advanced CG

Real-Time Rendering

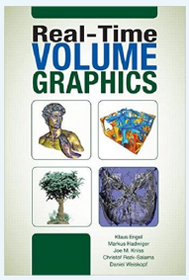
Offline Rendering



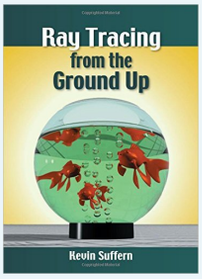
Tricks of the 3D Game Programming Gurus (2003)



Real-Time Rendering (RTR) 3rd Ed (2008)



Real-Time Volume Graphics (2006)

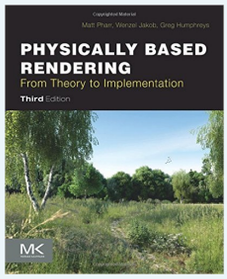


Ray Tracing from the Ground Up (2007)

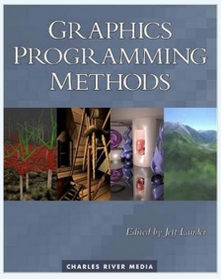
Real-Time Shadows (2011)

Direct3D

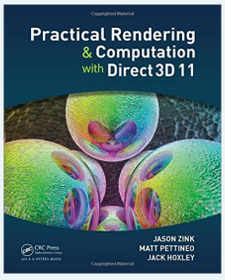
OpenGL



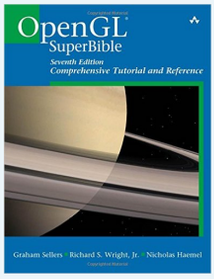
Physically Based Rendering (PBRT) 3rd Ed (2016)



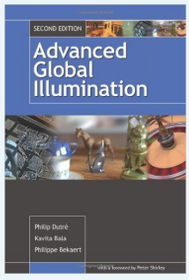
Graphics Programming Methods (2003)



Practical Rendering and Computation with Direct3D 11 (2011)

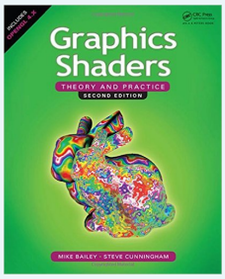


OpenGL Super Bible 7th Ed (2015)

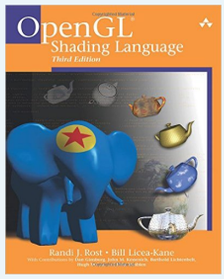


Advanced Global Illumination 2nd Ed (2006)

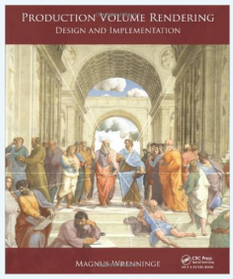
ShaderX (1996)



Graphics Shaders 2nd Ed (2011)

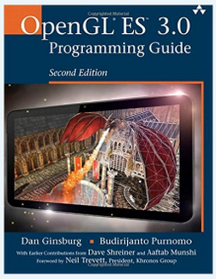


OpenGL Shading Language 3rd Ed (2009)



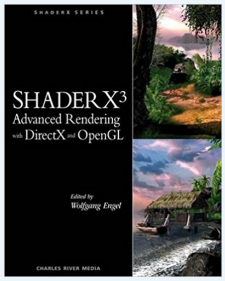
Production Volume Rendering (2012)

ShaderX2 (2003)



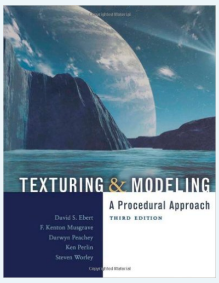
OpenGL ES 3.0 Programming Guide 2nd Ed (2014)

CG Technologies

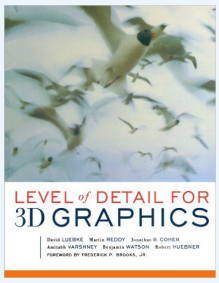


ShaderX3 (2004)

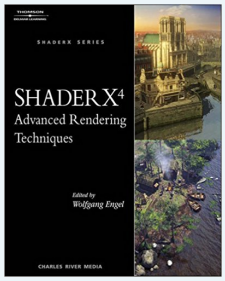
OpenGL Insights (2012)



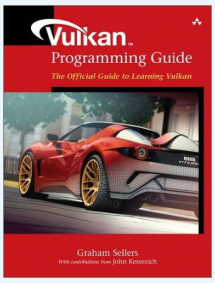
Texturing and Modeling (2002)



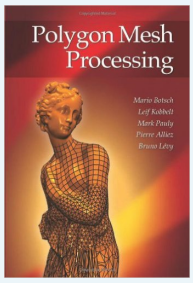
Level of Detail for 3D Graphics (2002)



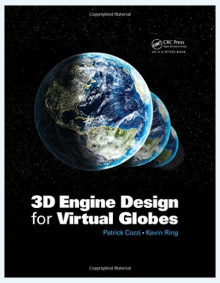
ShaderX4 (2006)



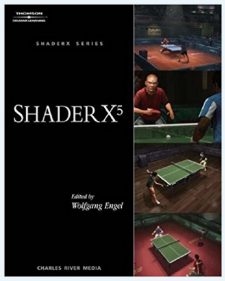
Vulkan Programming Guide (2016)



Polygon Mesh Processing (2010)

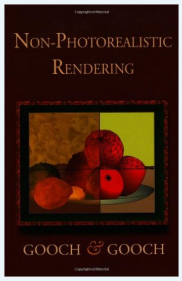


3D Engine Design for Virtual Globes (2011)

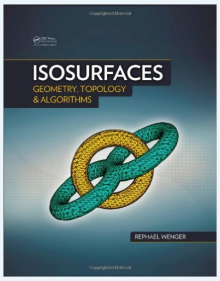


ShaderX5 (2006)

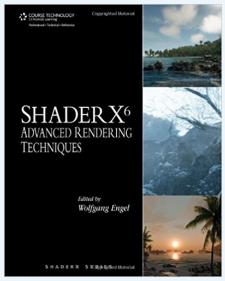
CG Articles



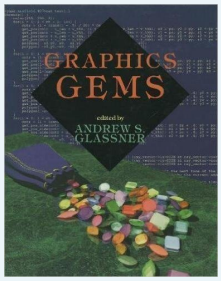
Non-Photorealistic Rendering (2001)



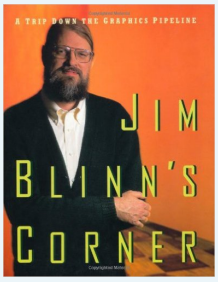
Isosurfaces (2013)



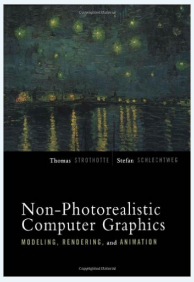
ShaderX6 (2008)



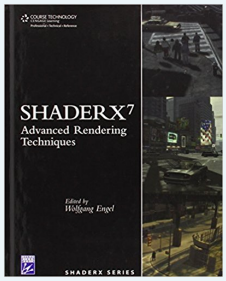
Graphics Gems (1990)



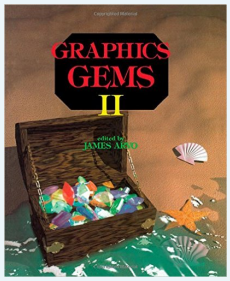
Jim Blinn's Corner: A Trip Down the Graphics Pipeline (1997)



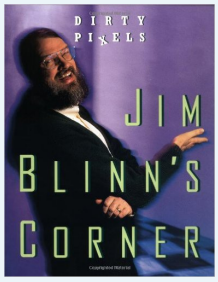
Non-Photorealistic Computer Graphics (2002)



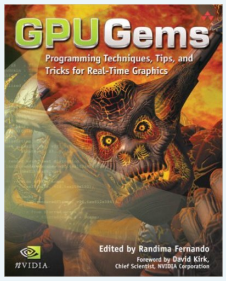
ShaderX7 (2009)



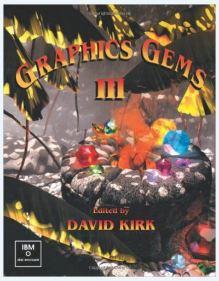
Graphics Gems II (1991)



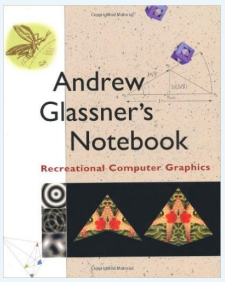
Jim Blinn's Corner: Dirty Pixels (1998)



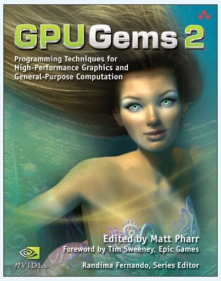
GPU Gems (2004)



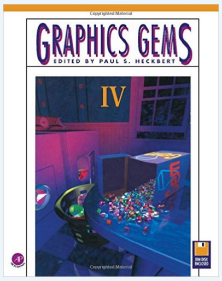
Graphics Gems III (1994)



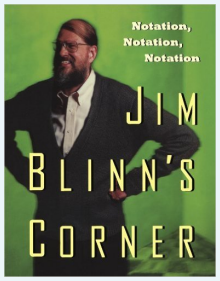
Andrew Glassner's Notebook (1999)



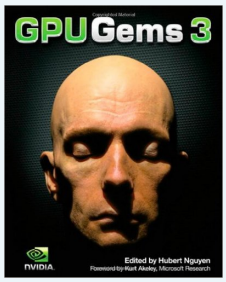
GPU Gems 2 (2005)



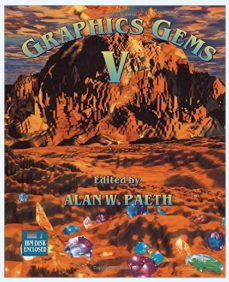
Graphics Gems IV (1994)



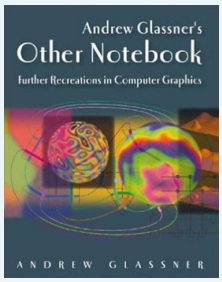
Jim Blinn's Corner: Notation, Notation, Notation (2002)



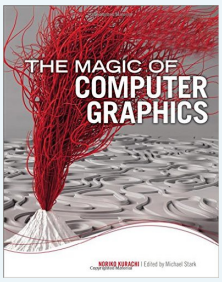
GPU Gems 3 (2007)



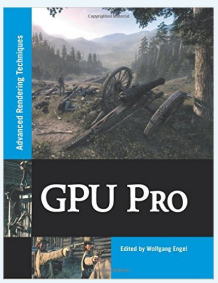
Graphics Gems V (1995)



Andrew Glassner's Other Notebook (2002)

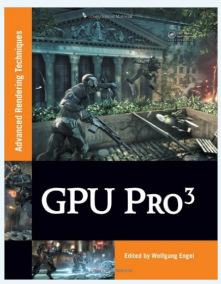


The Magic of Computer Graphics (2011)

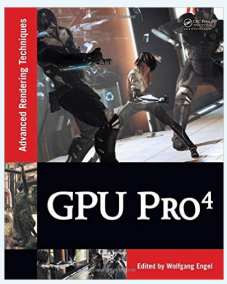


GPU Pro (2010)

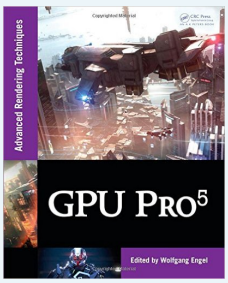
GPU Pro 2 (2011)



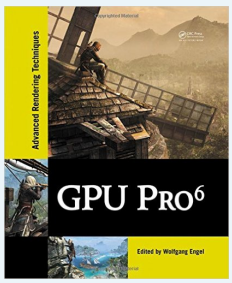
GPU Pro 3 (2012)



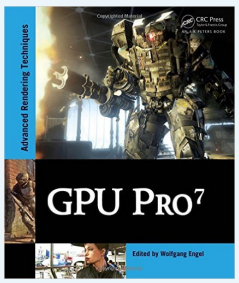
GPU Pro 4 (2013)



GPU Pro 5 (2014)



GPU Pro 6 (2015)

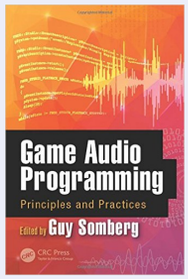


GPU Pro 7 (2016)

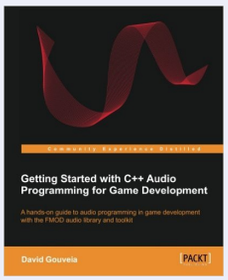
GPU Zen (2017)

8. Game Audio

Game Audio Programming



Game Audio Programming (2016)



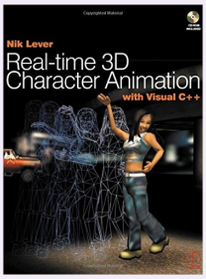
Getting Started with C++ Audio Programming for Game Development (2013)

9. Game Physics and Animation

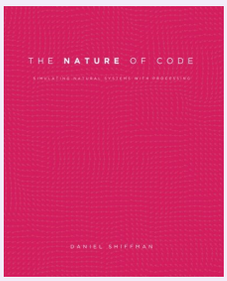
Beginning Game Animation Programming

Beginning Game Physics Programming

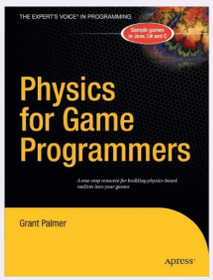
Character Animation with Direct3D (2011)



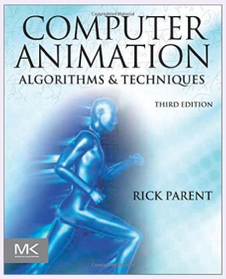
Real-time 3D Character Animation with Visual C++ (2001)



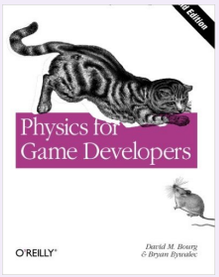
The Nature of Code (2012)



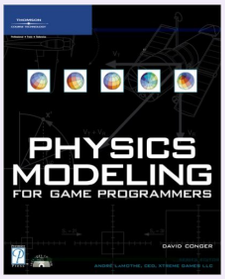
Physics for Game Programmers (2003)



Computer Animation 3rd Ed (2012)



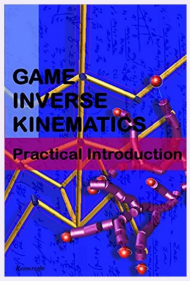
Physics for Game Developers 2nd Ed (2013)



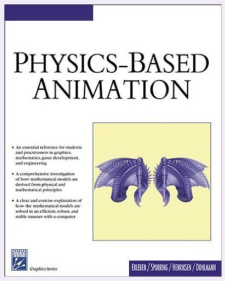
Physics Modeling for Game Programmers (2004)

Advanced Game Animation Programming

Advanced Game Physics Programming

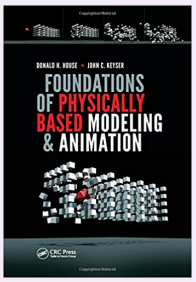


Game Inverse Kinematics (2013)

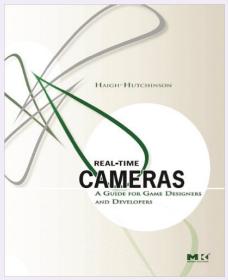


Physics Based Animation (2005)

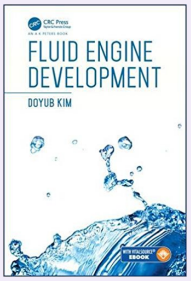
Fluid Animation/Simulation



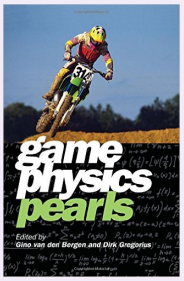
Foundations of Physically Based Modeling and Animation (2017)



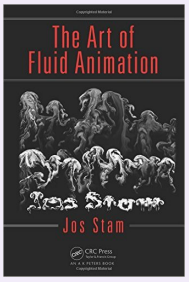
Real-Time Cameras (2009)



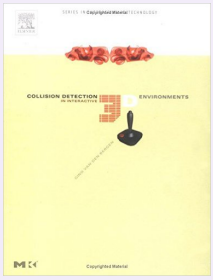
Fluid Engine Development (2016)



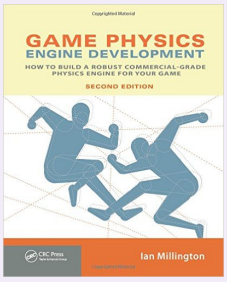
Game Physics Pearls (2010)



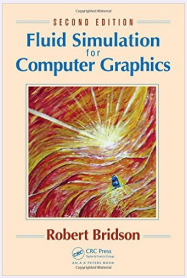
The Art of Fluid Animation (2015)



Collision Detection in Interactive 3D Environments (2003)

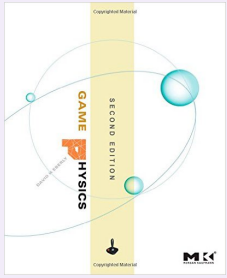


Game Physics Engine Development 2nd Ed (2010)



Fluid Simulation for Computer Graphics 2nd Ed (2015)

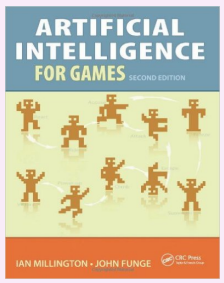
Real-Time Collision Detection (2004)



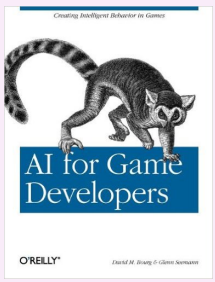
Game Physics 2nd Ed (2010)

10. Game Artificial Intelligence (AI)

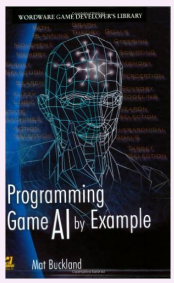
Beginning Game AI



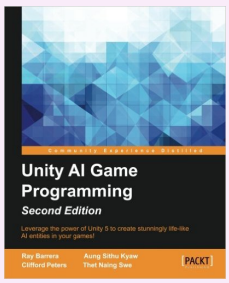
Artificial Intelligence for Games 2nd Ed (2009)



AI for Game Developers (2004)

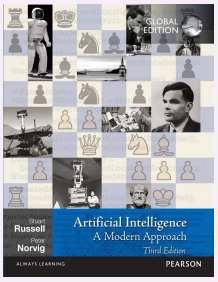


Programming Game AI By Example (2004)

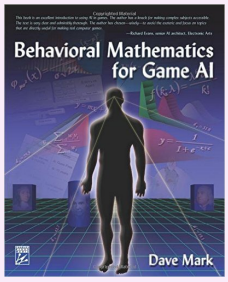


Unity AI Game Programming 2nd Ed (2015)

Intermediate Game AI

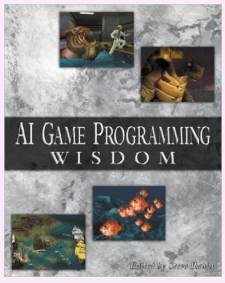


Artificial Intelligence Modern Approach (AIMA) 3rd Ed (2009)

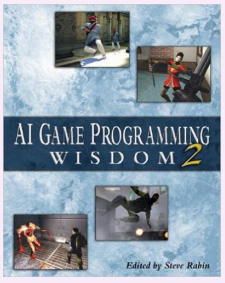


Behavioral Mathematics for Game AI (2009)

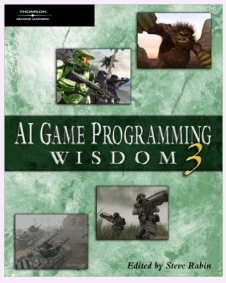
Game AI Articles



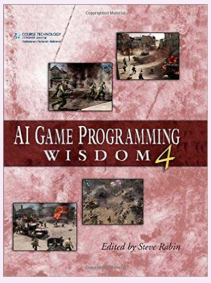
AI Game Programming Wisdom (2002)



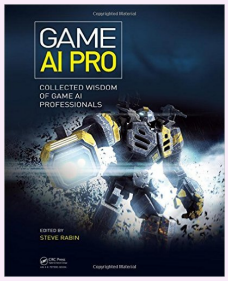
AI Game Programming Wisdom 2 (2003)



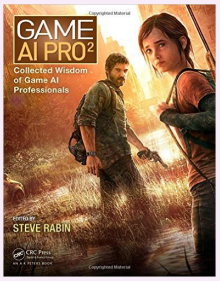
AI Game Programming Wisdom 3 (2006)



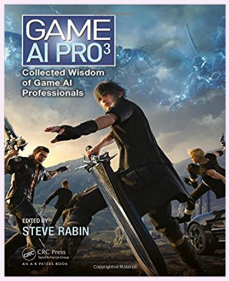
AI Game Programming Wisdom 4 (2008)



Game AI Pro (2013)



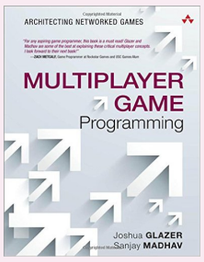
Game AI Pro 2 (2015)



Game AI Pro 3 (2017)

11. Multiplayer Game Programming

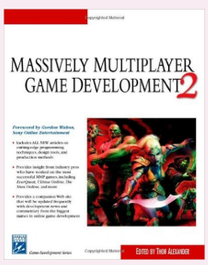
Beginning Multiplayer Game Programming



Multiplayer Game Programming (2015)

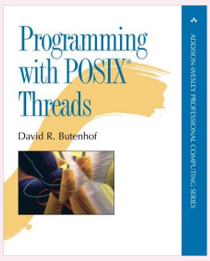
Multiplayer Game Articles

Massively Multiplayer Game Development (2003)

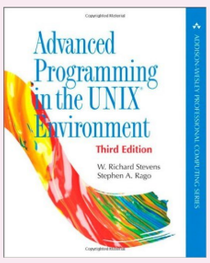


Massively Multiplayer Game Development 2 (2005)

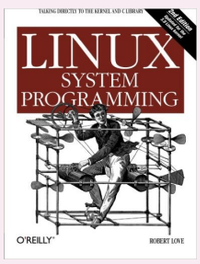
Server Programming



Programming with POSIX Threads (1997)

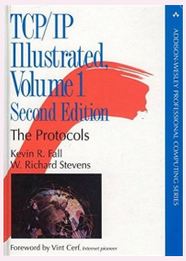


Advanced Programming in the UNIX Environment 3rd Ed (2013)

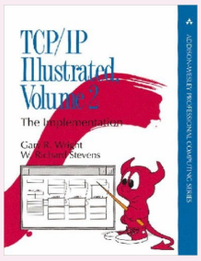


Linux System Programming 2nd Ed (2013)

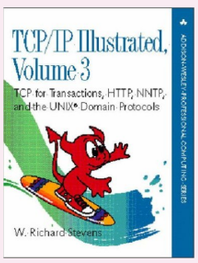
Network Protocol



TCP/IP Illustrated Vol 1 2nd Ed (2011)

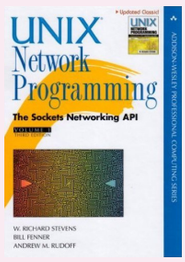


TCP/IP Illustrated Vol 2 (1995)

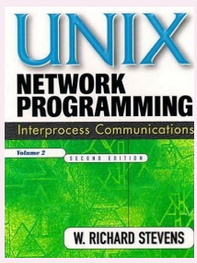


TCP/IP Illustrated Vol 3 (1996)

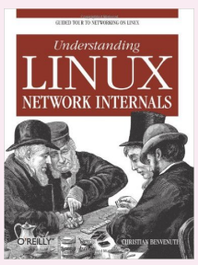
Network Programming



Unix Network Programming Vol 1 3rd Ed (2003)



Unix Network Programming Vol 2 2nd Ed (1998)



Understanding Linux Network Internals (2006)

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