DESCRIPTION

The essential guide to solving algorithmic and networking problems in commercial computer games, revised and extended

*Algorithms and Networking for Computer Games, Second Edition* is written from the perspective of the computer scientist. Combining algorithmic knowledge and game-related problems, it explores the most common problems encountered in game programming.

The first part of the book presents practical algorithms for solving “classical” topics, such as random numbers, procedural generation, tournaments, group formations and game trees. The authors also focus on how to find a path in, create the terrain of, and make decisions in the game world.

The second part introduces networking related problems in computer games, focusing on four key questions: how to hide the inherent communication delay, how to best exploit limited network resources, how to cope with cheating and how to measure the on-line game data.

Thoroughly revised, updated, and expanded to reflect the many constituent changes occurring in the commercial gaming industry since the original, this *Second Edition*, like the first, is a timely, comprehensive resource offering deeper algorithmic insight and more extensive coverage of game-specific networking problems than ordinarily encountered in game development books.

*Algorithms and Networking for Computer Games, Second Edition:*
• Provides algorithmic solutions in pseudo-code format, which emphasises the idea behind the solution, and can easily be written into a programming language of choice

• Features a section on the Synthetic player, covering decision-making, influence maps, finite-state machines, flocking, fuzzy sets, and probabilistic reasoning and noise generation

• Contains in-depth treatment of network communication, including dead-reckoning, local perception filters, cheating prevention and on-line metrics

• Now includes 73 ready-to-use algorithms and 247 illustrative exercises

*Algorithms and Networking for Computer Games, Second Edition* is a must-have resource for advanced undergraduate and graduate students taking computer game related courses, postgraduate researchers in game-related topics, and developers interested in deepening their knowledge of the theoretical underpinnings of computer games and in learning new approaches to game design and programming.

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**ABOUT THE AUTHOR**

**Jouni Smed** holds a doctorate in Computer Science and acts as a Senior Lecturer and Adjunct Professor at the University of Turku, Finland. He is also the co-founder of Turku Game Lab, which aims at bringing together technologically- and artistically-oriented students to collaborate on game projects and jump-start their careers in the game industry. For the past twenty years, his research interests have focused on various areas of game development: from code tweaking to software processes and from simple puzzles to multisite game development.

**Harri Hakonen** works as a senior software developer at Ericsson, being a member of a small team implementing embedded real-time products over Linux. He has thirty years of computer-related experience, covering various professions at academy, software industry and startups. Harri has always been keen on concrete software construction, from implementing low level bit-fiddling to catalyzing teamwork, and he will never stop programming.

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