

Part IV
Advanced Programming

Albert Einstein, 1879-1955

Einstein was born in Ulm in a German Jewish family with liberal ideas. Although he did show early signs of brilliance, he did not do well in school. He especially disliked German teaching methods... Einstein burst upon the scientific scene in 1905 with his theory of special relativity.

Courtesy: For all Practical purposes—Introduction to Contemporary Mathematics (ISBN 0-7167-1830-8)

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“When times are bad, think what it means.”

Game Programming

Game programming involves both graphics programming and intellectual programming. Only few people prefer game programming as it seems to be tough.



38.1 Graphics Mode

To present your game in a pleasant form, you need to know about Graphics. Usually Game programmers prefer mode 13h, as it is faster. We have already seen about mode 13h programming. Game programmers use certain jargons related to graphics like “clipping”, “flipping”, etc. You may also need to know these jargons for game programming.

38.2 Logic

It is advisable to develop a game’s outline or graphics output from its logic. Many people often build game from graphics outline than from logic. It is a wrong practice. First of all your game must be unique and should use faster algorithms. Your game should technically sound good.

38.3 Alexander Russell’s Guide

Alexander Russell is one of the world’s well-known authorities in Game Programming. His tutorial, which comprises of seven chapters titled **Alex Russell's Dos Game Programming in C for Beginners**, is available on CD . If you want to develop yourself further on Game Programming, don’t hesitate to look into CD . Alexander Russell is kind enough and granted permission for using his valuable sources with **A to Z of C**. Many thanks to Mr. Alexander Russell. He can be reached at http://www3.telus.net/alexander_russell/

Following are the contents of Alexander Russell’s guide.

Chapter 1

- Quick overview of c
 - pointers
 - structs
 - functions
 - dynamic memory allocation
 - include files
 - file i/o

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- memory models, why we will use medium
 - global variables, and other evils
- Entering mode13h, via int86
 - mode13h details
 - saving and restoring old video mode

Chapter 2

- Double buffering vs. page flipping, and syncing to vertical retrace
- Graphic primitives
 - dots/pixels
 - horizontal lines
 - vertical lines
 - arbitrary lines
 - filled rectangles

Chapter 2.1

- More graphic primitives
 - solid sprites
 - transparent sprites
 - RLE transparent sprites
 - restoring backgrounds
 - graphic text
- Loading images from drawing programs

Chapter 3

- Animation
 - bouncing pixel on black
 - bouncing sprite on black
 - bouncing sprite on fancy background
 - multiple bouncing sprites

Chapter 4

- i/o
 - keyboard
 - mouse
 - joystick
- combining all user input in one event queue

Chapter 5

- Collision detection
 - rectangles only
- Colour management

- colour cycling
- reserved colours for common elements
- dynamic colours for various parts of a game
- Timing a game, and game design
 - * separating drawing from logic *
 - the PC timer
 - too slow
 - too fast

Chapter 6

- Games
 - Break Out
 - simple animation
 - collision detection
 - player control

Suggested Projects

1. Develop a Chess software.
2. Develop a Quake4 game.