

# Donald Knuth

## Quotes

*Computer, Art, Thinking, Writing, Science, Important, Learning, People,  
Algorithms, Design, Reality, Book, Facts, Long, Machines, Trying, Way,  
Practice, Roots, Evil*

An algorithm must be seen to be believed.

~Donald Knuth

Programming is the art of telling another human being what one wants the computer to do.

~Donald Knuth

Random numbers should not be generated with a method chosen at random

~Donald Knuth

Computers are good at following instructions, but not at reading your mind.

~Donald Knuth

Science is what we understand well enough to explain to a computer. Art is everything else we do.

~Donald Knuth

People who are more than casually interested in computers should have at least some idea of what the underlying hardware is like. Otherwise the programs they write will be pretty weird.

~Donald Knuth

Everyday life is like programming, I guess. If you love something you can put beauty into it.

~Donald Knuth

Programs are meant to be read by humans and only incidentally for computers to execute.

~Donald Knuth

We should forget about small efficiencies, say about 97% of the time: premature optimization is the root of all evil.

~Donald Knuth

People think that computer science is the art of geniuses but the actual reality is the opposite, just many people doing things that build on each other, like a wall of mini stones.

~Donald Knuth

The whole thing that makes a mathematician's life worthwhile is that he gets the grudging admiration of three or four colleagues.

~Donald Knuth

AI has by now succeeded in doing essentially everything that requires 'thinking' but has failed to do most of what people and animals do 'without thinking'-that, somehow, is much harder.

~Donald Knuth

If you optimize everything, you will always be unhappy.

~Donald Knuth

In fact what I would like to see is thousands of computer scientists let loose to do whatever they want. That's what really advances the field.

~Donald Knuth

I have a hunch that the unknown sequences of DNA will decode into copyright notices and patent protections.

~Donald Knuth

I decry the current tendency to seek patents on algorithms. There are better ways to earn a living than to prevent other people from making use of one's contributions to computer science.

~Donald Knuth

The best theory is inspired by practice.

~Donald Knuth

I can't go to a restaurant and order food because I keep looking at the fonts on the menu.

~Donald Knuth

We should forget about small efficiencies, say about 97% of the time: premature optimization is the root of all evil. Yet we should not pass up our opportunities in that critical 3%

~Donald Knuth

By understanding a machine-oriented language, the programmer will tend to use a much more efficient method; it is much closer to reality.

~Donald Knuth

Premature optimization is the root of all evil.

~Donald Knuth

TeX has found at least one bug in every Pascal compiler it's been run on, I think, and at least two in every C compiler

~Donald Knuth

I try to learn certain areas of computer science exhaustively; then I try to digest that knowledge into a form that is accessible to people who don't have time for such study.

~Donald Knuth

My general working style is to write everything first with pencil and paper, sitting beside a big wastebasket. Then I use Emacs to enter the text into my machine.

~Donald Knuth

The most important thing in the kitchen is the waste paper basket and it needs to be centrally located.

~Donald Knuth

How can you own numbers? Numbers belong to the world.

~Donald Knuth

A list is only as strong as its weakest link.

~Donald Knuth

A mathematical formula should never be "owned" by anybody!  
Mathematics belong to God.

~Donald Knuth

Beware of bugs in the above code; I have only proved it correct, not tried it.

~Donald Knuth

The important thing, once you have enough to eat and a nice house, is what you can do for others, what you can contribute to the enterprise as a whole.

~Donald Knuth

The enjoyment of one's tools is an essential ingredient of successful work.

~Donald Knuth

It is much more rewarding to do more with less.

~Donald Knuth

Any inaccuracies in this index may be explained by the fact that it has been prepared with the help of a computer.

~Donald Knuth

The designer of a new kind of system must participate fully in the implementation.

~Donald Knuth

[The Euclidean algorithm is] the granddaddy of all algorithms, because it is the oldest nontrivial algorithm that has survived to the present day.

~Donald Knuth

In fact, my main conclusion after spending ten years of my life working on the TEX project is that software is hard. It's harder than anything else I've ever had to do.

~Donald Knuth

It would be nice if we could design a virtual reality in Hyperbolic Space, and meet each other there.

~Donald Knuth

Science is knowledge which we understand so well that we can teach it to a computer; and if we don't fully understand something, it is an art to deal with it.

~Donald Knuth

Always remember, however, that there's usually a simpler and better way to do something than the first way that pops into your head.

~Donald Knuth

I think people who write programs do have at least a glimmer of extra insight into the nature of God... because creating a program often means that you have to create a small universe

~Donald Knuth

Whenever the C++ language designers had two competing ideas as to how they should solve some problem, they said, "OK, we'll do them both". So the language is too baroque for my taste.

~Donald Knuth

We should continually be striving to transform every art into a science: in the process, we advance the art.

~Donald Knuth

Programming is legitimate and necessary academic endeavour.

~Donald Knuth

I'm obsessively detail-oriented.

~Donald Knuth

The psychological profiling [of a programmer] is mostly the ability to shift levels of abstraction, from low level to high level. To see something in the small and to see something in the large.

~Donald Knuth

I remember that mathematicians were telling me in the 1960s that they would recognize computer science as a mature discipline when it had 1,000 deep algorithms. I think we've probably reached 500.

~Donald Knuth

God is a challenge because there is no proof of his existence and therefore the search must continue.

~Donald Knuth

I can't be as confident about computer science as I can about biology. Biology easily has 500 years of exciting problems to work on. It's at that level.

~Donald Knuth

I've never been a good estimator of how long things are going to take.

~Donald Knuth

Meta-design is much more difficult than design; it's easier to draw something than to explain how to draw it.

~Donald Knuth

The sun comes up just about as often as it goes down, in the long run, but this doesn't make its motion random.

~Donald Knuth

The manuals we got from IBM would show examples of programs and I knew I could do a heck of a lot better than that. So I thought I might have some talent.

~Donald Knuth

I define UNIX as 30 definitions of regular expressions living under one roof.

~Donald Knuth

There's ways to amuse yourself while doing things and that's how I look at efficiency.

~Donald Knuth

The best practice is inspired by theory.

~Donald Knuth

Trees sprout up just about everywhere in computer science.

~Donald Knuth



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