***The Art of Computer Programming*** (sometimes known by its initials ***TAOCP***) is a comprehensive [monograph](https://en.wikipedia.org/wiki/Monograph) written by [Donald Knuth](https://en.wikipedia.org/wiki/Donald_Knuth) that covers many kinds of [programming](https://en.wikipedia.org/wiki/Computer_programming) [algorithms](https://en.wikipedia.org/wiki/Algorithm) and [their analysis](https://en.wikipedia.org/wiki/Analysis_of_algorithms).

Knuth began the project, originally conceived as a single book with twelve chapters, in 1962. The first three volumes of what was then expected to be a seven-volume set were published in 1968, 1969, and 1973. The first installment of Volume 4 (a paperback [fascicle](https://en.wikipedia.org/wiki/Fascicle_(book))) was published in 2005. The hardback Volume 4A, combining Volume 4, Fascicles 0-4, was published in 2011. Additional fascicle installments are planned for release approximately biannually; Volume 4, Fascicle 6 ("Satisfiability") was released in December 2015.

Knuth started to write a book about compiler design in 1962, and soon realized that the scope of the book needed to be much larger. In June 1965, Knuth finished the first draft of what was originally planned to be a single volume of twelve chapters. His hand-written first-draft manuscript (completed in 1966) was 3,000 pages long: he had assumed that about five hand-written pages would translate into one printed page, but his publisher said instead that about 1½ hand-written pages translated to one printed page. This meant the book would be approximately 2,000 pages in length. The publisher was nervous about accepting such a project from a graduate student. At this point, Knuth received support from Richard S. Varga, who was the scientific advisor to the publisher. Varga was visiting [Olga Taussky-Todd](https://en.wikipedia.org/wiki/Olga_Taussky-Todd) and [John Todd](https://en.wikipedia.org/wiki/John_Todd_(computer_scientist)) at [Caltech](https://en.wikipedia.org/wiki/Caltech). With Varga's enthusiastic endorsement, the publisher accepted Knuth's expanded plans. In its expanded version, the book would be published in seven volumes, each with just one or two chapters.[1] Due to the growth in the material, the plan for Volume 4 has since expanded to include Volumes 4A, 4B, 4C, 4D, and possibly more.

In 1976, Knuth prepared a second edition of Volume 2, requiring it to be [typeset](https://en.wikipedia.org/wiki/Typesetting) again, but the style of type used in the first edition (called [hot type](https://en.wikipedia.org/wiki/Hot_metal_typesetting)) was no longer available. In 1977, he decided to spend some time creating something more suitable. Eight years later, he returned with [TEX](https://en.wikipedia.org/wiki/TeX), which is currently used for all volumes.

The offer of a so-called [Knuth reward check](https://en.wikipedia.org/wiki/Knuth_reward_check) worth "one hexadecimal dollar" (100[HEX](https://en.wikipedia.org/wiki/Hexadecimal) [base 16](https://en.wikipedia.org/wiki/Hexadecimal) cents, in [decimal](https://en.wikipedia.org/wiki/Decimal), is $2.56) for any errors found, and the correction of these errors in subsequent printings, has contributed to the highly polished and still-authoritative nature of the work, long after its first publication. Another characteristic of the volumes is the variation in the difficulty of the exercises. The level of difficulty ranges from "warm-up" exercises to unsolved research problems.