

What is computer science?

Steven Salzberg

The science of computing
computer algorithms
programming languages
computer hardware

A Venn diagram consisting of three overlapping ellipses. The top-left ellipse is green and labeled 'Theory'. The top-right ellipse is blue and labeled 'Systems'. The bottom ellipse is purple and labeled 'Applications'. The central region where all three ellipses overlap contains the text 'Computer Science' in black. The ellipses are arranged in a triangular pattern, with each one overlapping the other two.

Theory

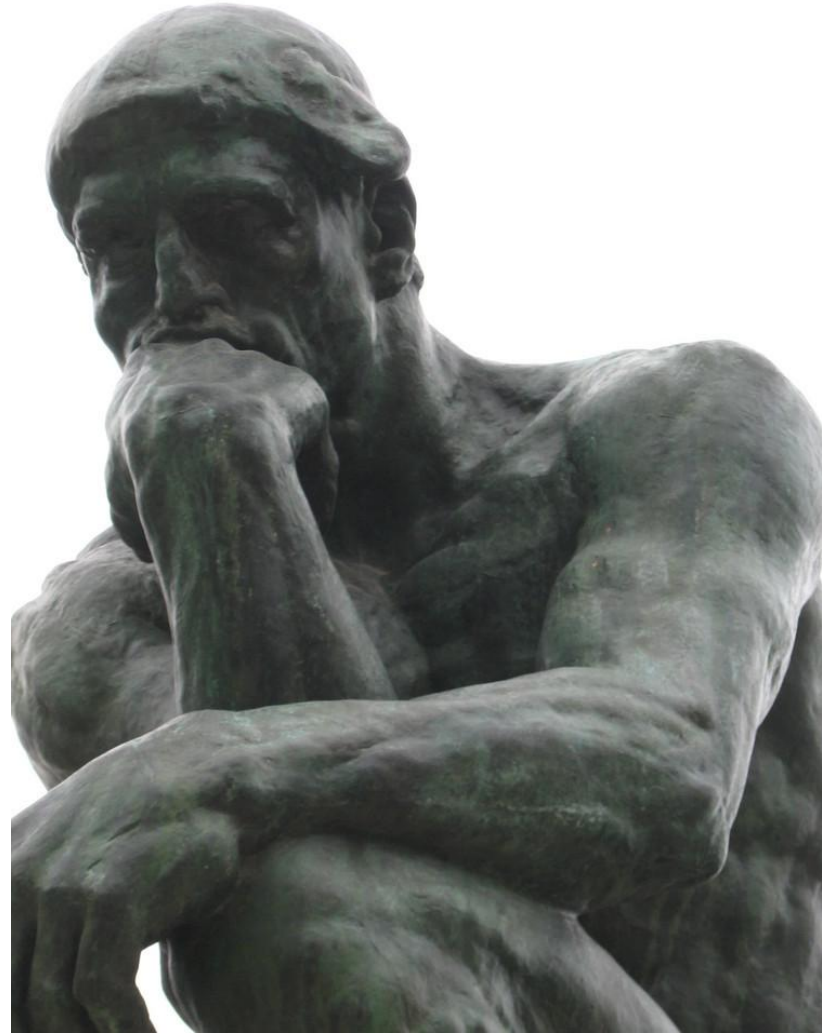
Systems

Computer
Science

Applications

What do computer scientists do?

Thinking computationally





Linux™

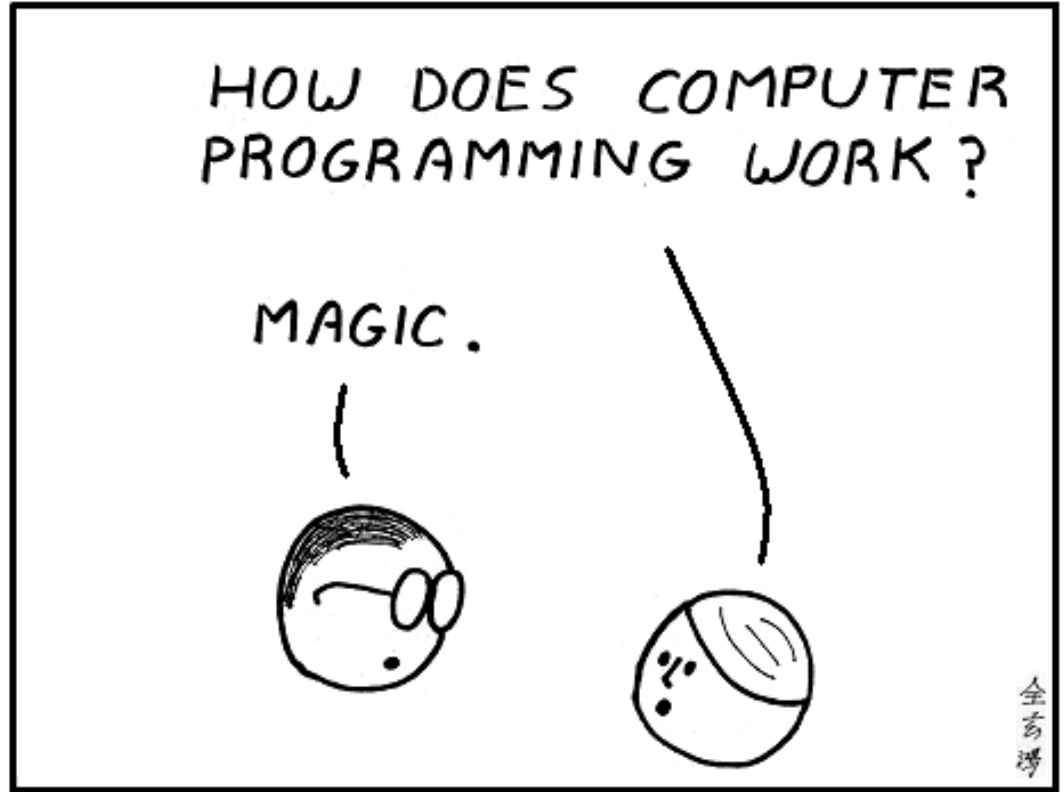


UNIX (operating system)

Programming: how we talk to computers

```
while (<genefile>) {
    chomp;
    if (/^>/) { # header line
    }
    else {
        ($seq) = split(" ");
        $total_length += length($seq);
        for ($i=0; $i<length($seq); $i++) {
            $next = substr($seq,$i,1);
            if ($next eq 'g' || $next eq 'G') { $g_ct++; }
            if ($next eq 'c' || $next eq 'C') { $c_ct++; }
            if ($next eq 'a' || $next eq 'A') { $a_ct++; }
            if ($next eq 't' || $next eq 'T') { $t_ct++; }
        }
    }
}
```

Engineering:
good code is hard



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Devices

