

S O T N I R G



Algorithms & Analysis

“By understanding sorting, we obtain an amazing amount of power to solve other problems.”

– STEVEN SKIENA, THE ALGORITHM DESIGN MANUAL

(Some) Classic Sorting Algorithms

- Bubble
- Selection
- Insertion
- Merge: 1945 Jon von Neumann
- Quick: 1959 Tony Hoare
- Heap: 1964 J. W. J. Williams
- Radix: 1887 Hermann Hollerith, for his Tabulating Machine
- Bogo?

Bubble Sort

6 5 3 1 8 7 2 4

Bubble Sort

6 5 3 1 8 7 2 4

Bubble Sort

Bubble Sort

I. Loop over elements

Bubble Sort

1. Loop over elements
2. Swap anything that's out of order

Bubble Sort

1. Loop over elements
2. Swap anything that's out of order
3. Repeat 1-2 until there are no swaps

Big O

Time	$O(n^2)$
Space	$O(1)$