Visualization and Animation

software visualizations

"the objectives of software visualizations are to support the understanding of software systems (i.e., its structure) and algorithms (e.g., by animating the behavior of sorting algorithms) as well as the analysis of software systems and their anomalies (e.g., by showing classes with high coupling)."

Algorithm Visualizations & Program Visualizations

Urquiza-Fuentes and Velázquez-Iturbide (1998) give the following definitions for these terms:

- *Algorithm Visualizations: The static or dynamic visualization of higher-level* abstractions which describe the software.
- *Program Visualizations: The visualization of actual program code or data structures*—low-level abstraction—in either static or dynamic form.

Visualization and animation

- Visualization and animation have the potential to promote computer science learning from several reasons.
  - First, visualization and animation support very naturally active learning;
  - second, they enable learners to concretize abstract concepts; and
  - finally, learners may conceive visualization and animation as a kind of a game and therefore their use may increase the learners' interest in computer science.

Dancing with numbers

- Watch the following YouTube links. Each video demonstrates "something" that is being done with numbers. Watched the videos and address the following questions
  - Which problem is solved by each dance?
  - For each video, explain the method used in order to solve the problem.
- 1) http://www.youtube.com/watch?v=Ns4TPTC8whw&feature=related

2) http://www.youtube.com/watch?v=lyZQPjUT5B4http://www.youtube.com/watch?v=lyZQPjUT5B4

3) http://www.youtube.com/watch?v=ROalU379l3U&feature=related

4) http://www.youtube.com/watch?v=XaqR3G_NVoo&feature=related

- https://visualgo.net/en/sorting
- https://www.cs.usfca.edu/~galles/visualization/Algorithms.html