How to catch Santa Claus ?

Everybody knows him, nobody has seen him yet.

Santa Claus !

Even a child recognizes the fake: it is grandpa in disguise.
How to catch a real specimen ? How can this problem be solved ?

Old school computer scientists – especially the fishermen and bass-players among them - are per definition problem solvers. Or should I say : Solution Architects ?

After years of investigation I proudly present a couple of possible solutions:

1. the geometric method:

put a cylindrical cage in the forest in a snow-covered clearing:

case 1: Santa Claus is in the cage. This case is trivial.

case 2: Santa Claus is outside the cage.
Then stand in the cage and perform an inversion on the Cage walls.

This is how Santa Claus gets into the cage and you get outside.
Be careful not to stand in the middle of the cage, otherwise you will disappear in infinity.

2. the projection method

Here, too, a cage is required, it just does not necessarily have to be cylindrical.

Without loss of generality, we assume:

The earth is a sphere and at least one Santa Claus is on it.

We apply a Mercator projection to this sphere and get a finite plane. Now we project this plane onto a straight line that runs through the cage. And we are now projecting this straight line onto a point in the cage.

So Santa Claus gets into the cage.

3. the topological method

Santa Claus can be understood topologically as a torus.

Convolute the forest clearing into four-dimensional space.

Now it is possible to fold the clearing so that Santa Claus is tied up when the clearing is transformed back into the three-dimensional space.

Santa is helpless.

4. the stochastic method:

You need a Laplace wheel, some dice and a Gaussian bell.

With the Laplace wheel you drive into the forest and throw the dice at Santa Claus. If he comes up with his sledge, you put the Gaussian bell over him.

So he is caught with a probability of one.

5. the compactness method:

The clearing is assumed to be compact without loss of generality.

Cover it with a family of cages Ki (i € I). This will result in a manyfold of cages K_{i1}… K_{in} that cover the whole clearing. The search for Santas in this cages is awarded as a master's thesis at FNT

6. the logical method tertium non datur:

Put an open cage in the clearing and a board with glue next to it.
You offer both to Santa Claus to enter. He will say:
"I'm not pissing you off" after the tertium non datur he has to go into the cage.
Close the door. Ready.

7. the Newton method:

The cage and Santa Claus are attracted to each other by gravity.
If the friction is neglected, Santa Claus will sooner or later end up in the cage.

8. the Heisenberg method:

Location and speed of a moving Santa Claus cannot be determined at the same time. Since a moving Santa Claus does not occupy a physically meaningful place on a snowfield, he is not suitable for catching.

The Santa Claus hunt can therefore only be limited to a resting Santa Claus.

Catching a resting, motionless Santa Claus is left to the FNT students as a practice task.

9. the Schrödinger method:

The probability of finding a Santa Claus in the cage at any one time is greater than zero. Sit down and wait.

10. the Einstein method:

Fly over the forest clearing at almost the speed of light.

Due to the relativistic contraction of length, Santa becomes flat like a sheet of paper.

Grab him, roll him up, and put a rubber band around him.

11. the experimental physics method:

Take a semi-permeable membrane that lets everything through except Santa Claus and sift through the forest.

12. the fly fisher method:

Tie a dry fly that is irresistible in its irritation to Santa Clauses.
The bait is presented in the clearing by roll throw until Santa Claus takes a bite.

13. the functional analytical method

The clearing is a separable room. It therefore contains an enumerable dense set from which a sequence can be selected that converges against Santa Claus. With a cage on our back, we jump from point to point in this sequence and thus approach Santa Claus as closely as we want.

14. the functional theoretical method

We consider a regular Santa Claus valued function F in the clearing.
The cage is in point z of the clearing. Now form the integral:

1 / 2xPii x integral over C of the function F (epsilon) through epsilon – z
where C is the edge of the clearing.
The value of the integral is f (z), so there is a Santa Claus in a cage.

15. the iterative method (by Banach)

Let f be a contraction of the clearing in itself. x0 is its fixed point. Put the cage on this fixed point. By successive iteration:

Wn + 1 = f (Wn), n = n, 1,2 ... (W0 = clearing)

the clearing is drawn together to this fixed point.
This is how Santa Claus gets into the cage.

16. the Peano method

Construct a Peano curve through the clearing, that means a continuous curve that goes through every point in the clearing. It has been shown that such a curve can be traversed in any short time. With the cage under your arm, you can make the curve in less time than it takes Santa Claus to move around his own length.

17. the set theoretical method

The points of the clearing can be arranged well. Starting with the smallest element, you can catch Santa Claus by a transfinite induction.

18. the Bolzano-Weierstraß method

We halve the clearing in a north-south direction by a fence. Then Santa Claus is either in the western or in the eastern half. Let's assume he's in the western half. Then we cut this western part in half by a fence in an east-west direction. Santa Claus is either in the northern or in the southern part. We assume he's in the north. In this way we continue. The area of the parts that result from this process tends towards zero. In this way, Santa Claus is enclosed by a fence of any length.

19. The didactic method

Approach Santa Claus on the Bruner spiral.
Then elementize Santa Claus to a toddler and catch him with treats;

20. the method of developers

run the following algorithm (Pseudocode):

```
begin {
          go to clearing
          Start at the southern most point of the clearing
          Cross the clearing from south to north
          bidirectional in east-west direction
          For every crossing do
          {
                    Take a step north
                    Catch everything you see
                    Compare each captured object with a
                    Santa Claus well-known object
                    Stop if there is a match
          }
      }
end
```

How the algorithm is then implemented depends on the programming language used:

An experienced programmer

put a known object – recognizable as Santa – on the clearing.
So the program runs bug free.

an assembler programmer

Use the algorithm on his knees and pray.

a Pascal programmer

put a pointer on the clearing, writes END in front and dreams the real name of Santa is Nikolaus Wirth.

a LISP programmer

build a maze with brackets, hoping Santa is loosing orientation

a SQL programmer

is using this statement : SELECT SANTA FROM CLEARING

a experienced SQL programmer

is using this statement : SELECT DISTINCT SANTA FROM CLEARING

a very experienced SQL programmer

is using this :

```
begin
  SELECT distinct SANTA into v_santa FROM CLEARING where rownum=1;
exception when others
        v_santa := DEFAULT_SANTA;
end;
```

a C++ programmer

estimates first via sizeof() the required amount of memory for one Santa, tries to allocate this memory, forgets to check the result and finally fires with null-pointer at Santa

a Java programmer

insists, Santa is a class and has to have a catch-method by itself

a HTML5 programmer

throws completely unsuitable expressions in completely wrong direction
and explains the bug belongs to Santa.

a Flash programmer

develops 4 days, but based on security breach the program does not run on any browser, because all flash-player are banned.

21. the FNT sales method

Let a FNT-salesman off the leash.
He sells B2B an arbitrary FNT-product to Santa.
In shortest time he will call FNT-hotline and offers remote-access for support.
So we have an IP-address and can locate him.

Optionally, an FNT employee can go on site.