

# The Scientific Programmer

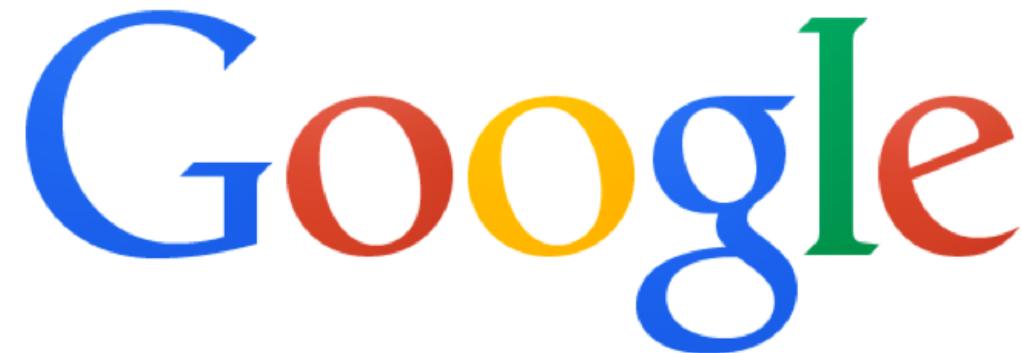
“How do you know that you know?”

@EricBouwers

**What do you want to improve in your development process?**

# Interruptions!

**So what do you do?**



Rubber duck debugging

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Rubber duck debugging



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### [Rubber duck debugging - Wikipedia, the free encyclopedia](#)

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Rubber duck debugging, rubber ducking, and the rubber duckie test are informal terms used in software engineering to refer to a method of debugging code.

### [Rubber Ducking](#)

[c2.com/cgi/wiki?RubberDucking](#) ▾

Nov 28, 2012 - Place a rubber duck on your monitor and describe your problems to it. .... actually], though - when you have problems, try **rubber ducking**. I don't ...

### ['Rubber Duck Debugging' is when a programmer explains code to a ...](#)

[www.omg-facts.com](#) › Technology Facts ▾

Jul 2, 2013 - The Rubber Duckie Test of course! Also known as **Rubber Duck Debugging**, the Rubber Duckie Test is a method of debugging code used by ...

### [How useful is "rubber duck debugging"? \[duplicate\] - Programmers](#)

[programmers.stackexchange.com/.../how-useful...](#) ▾ Stack Exchange Network ▾

Apr 15, 2013 - This question has been asked before and already has an answer. If those answers do not fully address your question, please ...

### [Rubber ducking | Qt Project](#)

[https://qt-project.org/duck](#) ▾ Qt Project ▾

Rubber ducking. Oh look, you've got a rubber duck now! Isn't it a lovely toy? And did you notice it squeaks? But maybe you wonder what else to do with it?

### [TIL that "Rubber Duck Debugging" is when a programmer explains ...](#)

[www.reddit.com/r/.../til\\_that\\_rubber\\_duck\\_debugging\\_is\\_when\\_a...](#) ▾ Reddit ▾

Dec 24, 2013 - You learn something new every day; what did you learn today? Submit interesting and specific facts that you just found out (not broad ...

### [Rubber Duck Debugging | RubaDuck](#)

[www.rubaduck.com/articles/rubber-duck-debugging](#) ▾

When working on complex code, programmers can sometimes become quite frustrated. It almost always happens that there are errors in the program, called bugs, ...

### [Nerd Merit Badges - 08: Rubber Duck](#)

[www.nerdmeritbadges.com/products/rubberduck](#) ▾

The Pragmatic Programmer calls it "Rubber Duck Debugging", sometimes the most



REJECTION

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Foto: Dietrich W. Hoffmann 1970

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REJECTION

**They simply don't believe!**



by Jeff Atwood

Mar 13, 2012 - Beginning to ask a question actually helps me **debug** my problem ... it crystal clear how the critical part of **rubber duck** problem solving is to ...

## **Rubber Ducking**

[c2.com/cgi/wiki?RubberDucking](http://c2.com/cgi/wiki?RubberDucking) ▾

Nov 28, 2012 - Place a rubber duck on your monitor and describe your problems to it. .... actually], though - when you have problems, try **rubber ducking**. I don't ...

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## **Rubber Duck Debugging | RubaDuck**

[www.rubaduck.com/articles/rubber-duck-debugging](http://www.rubaduck.com/articles/rubber-duck-debugging) ▾

When working on complex code, programmers can sometimes become quite frustrated. It almost always happens that there are errors in the program, called bugs, ...

## 5 Answers

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5



Rubber ducky helps greatly when there is some kind of **logic flaw** in your code, staring at live debugger variables will not help at all with this kind of bug.

Rubber ducky also helps greatly when used alongside live debugging to **verify assumptions** as you step through.

Rubber ducky forces you to think outside your normal "I'm programming now" box and often leads to sudden insight and fixes because of this outsider perspective.

In the end you should just **try it yourself** the next time you're trying to fix an inscrutable bug, you'll never find out how effective it is just by reading commentaries on the net.

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answered Apr 15 '13 at 3:18



Patrick Hughes

1,302 1 4 9

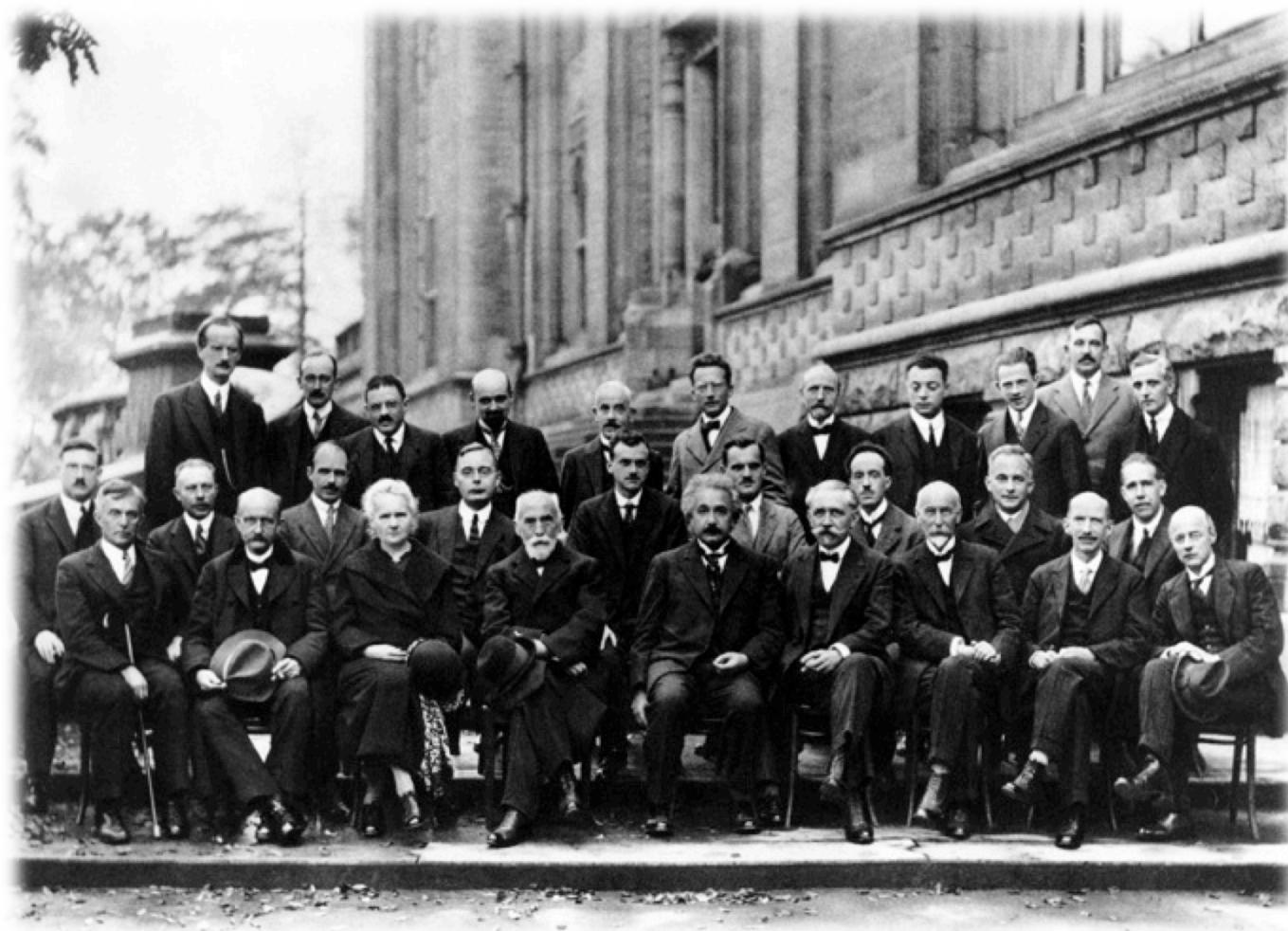
3 Programmers sometimes read what they want to be there - often what thought they wrote, not what they wrote. Rubber Ducking significantly reduces embarrassment caused by this behavior.... – [mattnz](#) Apr 15 '13 at 3:24

1 Excellent point - not just programmers but copywriters, editors, and I can name a few producers who have refined this to an art form =) – [Patrick Hughes](#) Apr 15 '13 at 4:51

[add comment](#)

# Research:

*“The systematic investigation into and study of materials and sources in order to establish facts and reach new conclusions.”*



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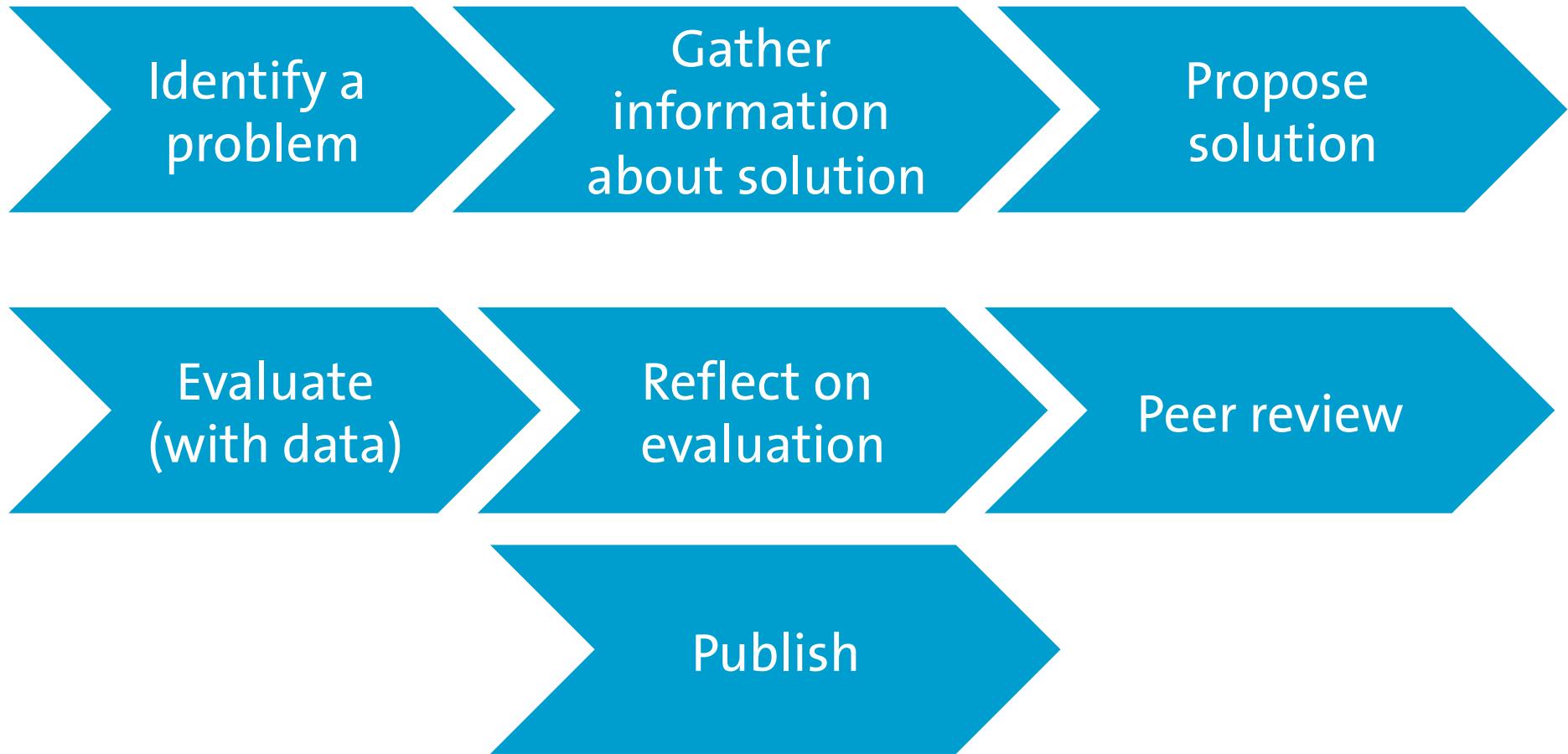


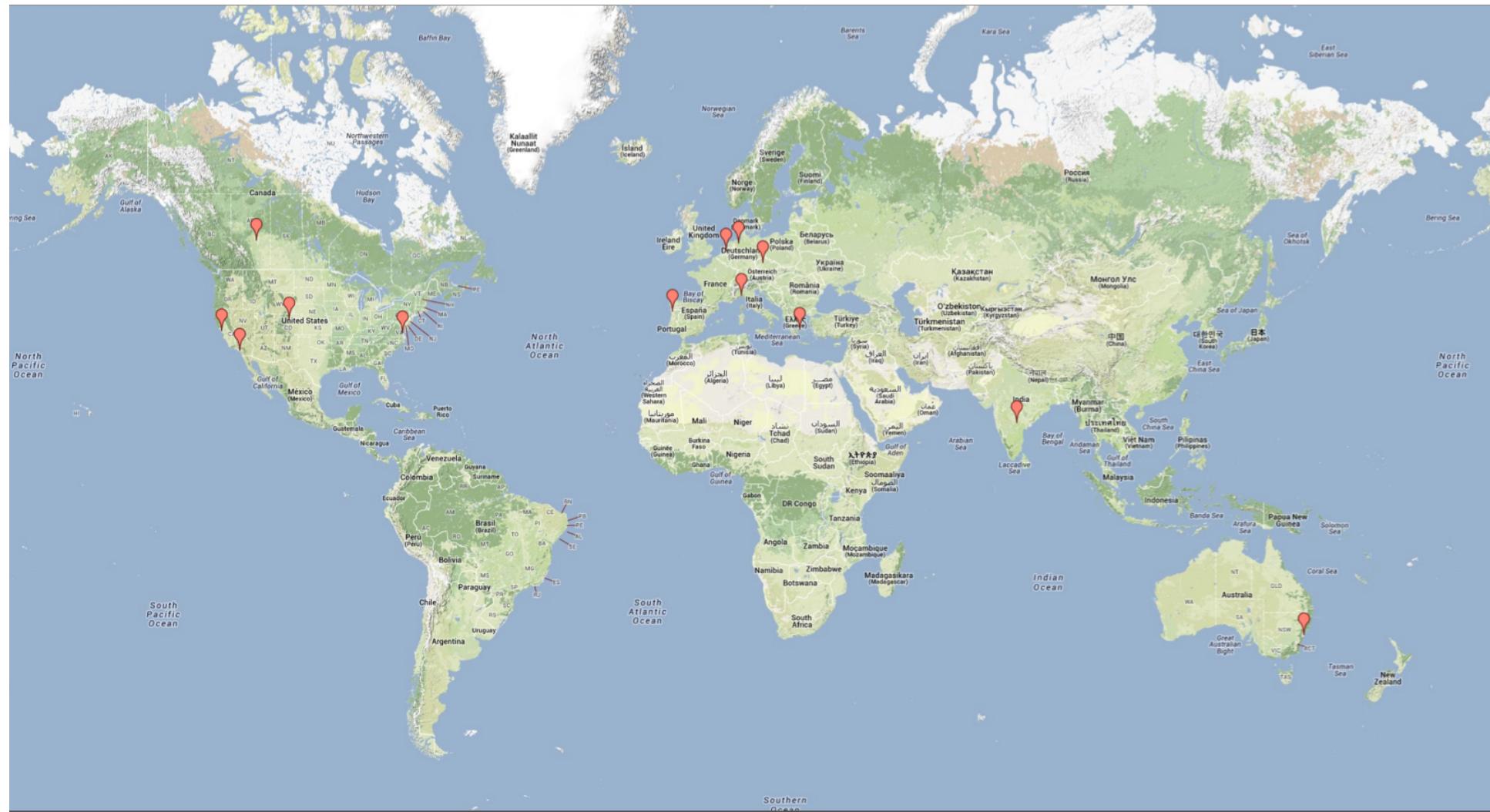
*“Developing a deep understanding  
of how people build and evolve  
software systems.”*

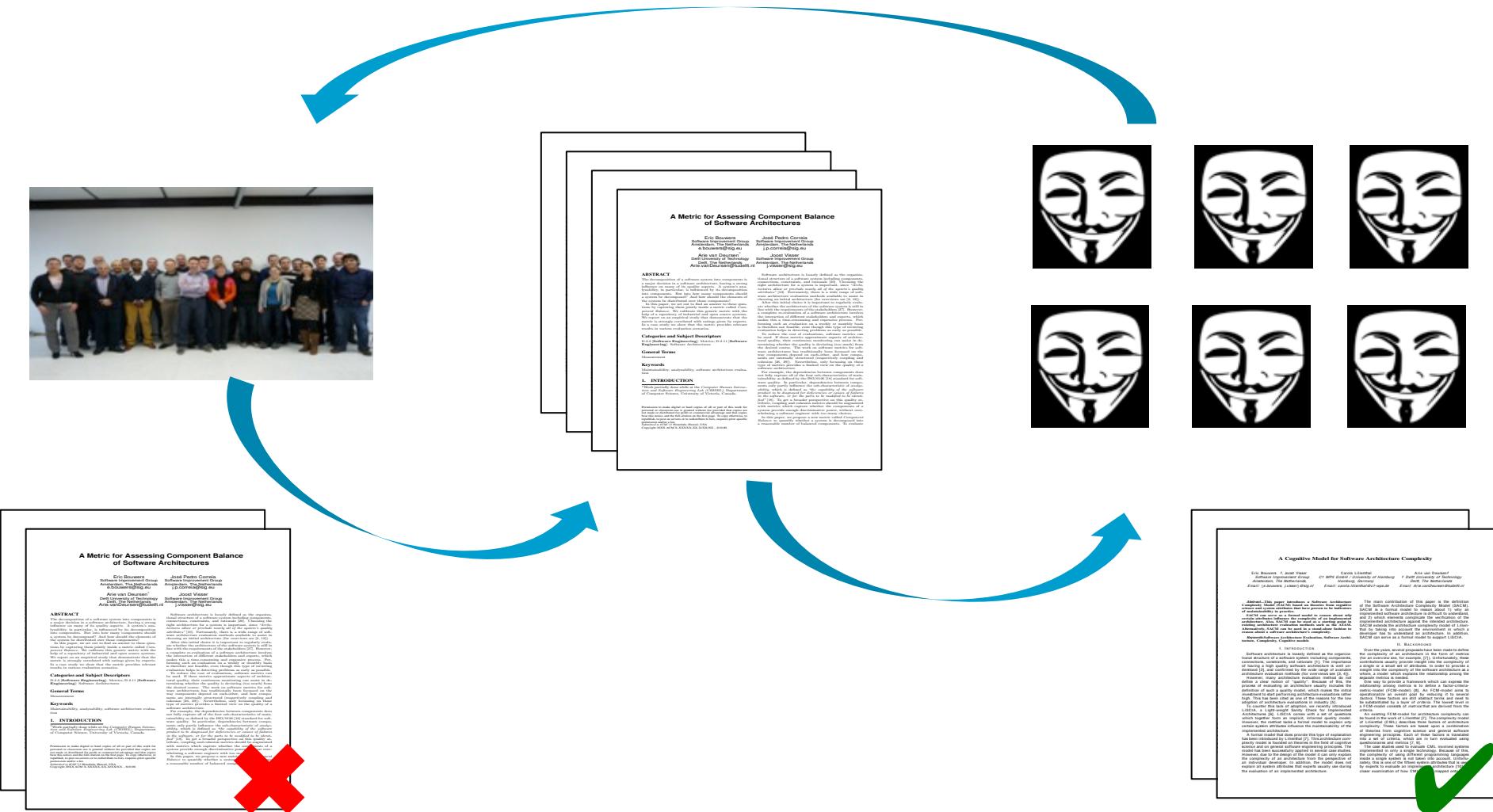
*“Developing novel methods,  
techniques and tools that advance  
the way in which software is built  
and modified.”*



**How do researchers do this?**







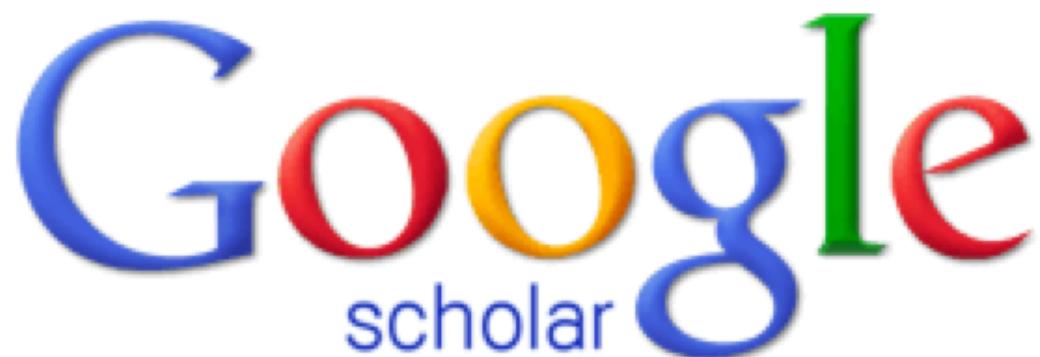
# **Why should we believe them?**

Show

Evaluate

Review

**Why don't we know about it?**



Rubber duck debugging



Articles ( include patents)



Case law

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R Phillips, D Lockton, S Baurley, S Silve - interactions, 2013 - dl.acm.org  
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A Ide - lib.ugent.be  
... Een woord van dank gaat uit naar mijn vrienden die meer dan eens het rubberen eendje speelden in de "**Rubber duck debugging**" methode, mijn familie, voor het verbeteren van de eindeloze rij taalfouten in de eerste versies van deze masterproef en speciaal naar mijn ...  
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**Department of Computer Science, The University of Texas at Austin, 78712, USA**  
D Carlino, SD Boyles, P Stone - ... Transportation Systems-(ITS) ..., 2013 - ieeexplore.ieee.org  
... The authors would like to thank Mandy Gabriel for useful discussions about game theory and for "**rubber duck**" debugging. REFERENCES [1] D. Schrank, B. Eisele, and T. Lomax, "2012 urban mobility report," Texas Transportation Institute, Tech. Rep., 2012. ...  
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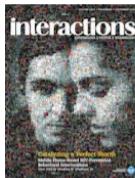
## interactions

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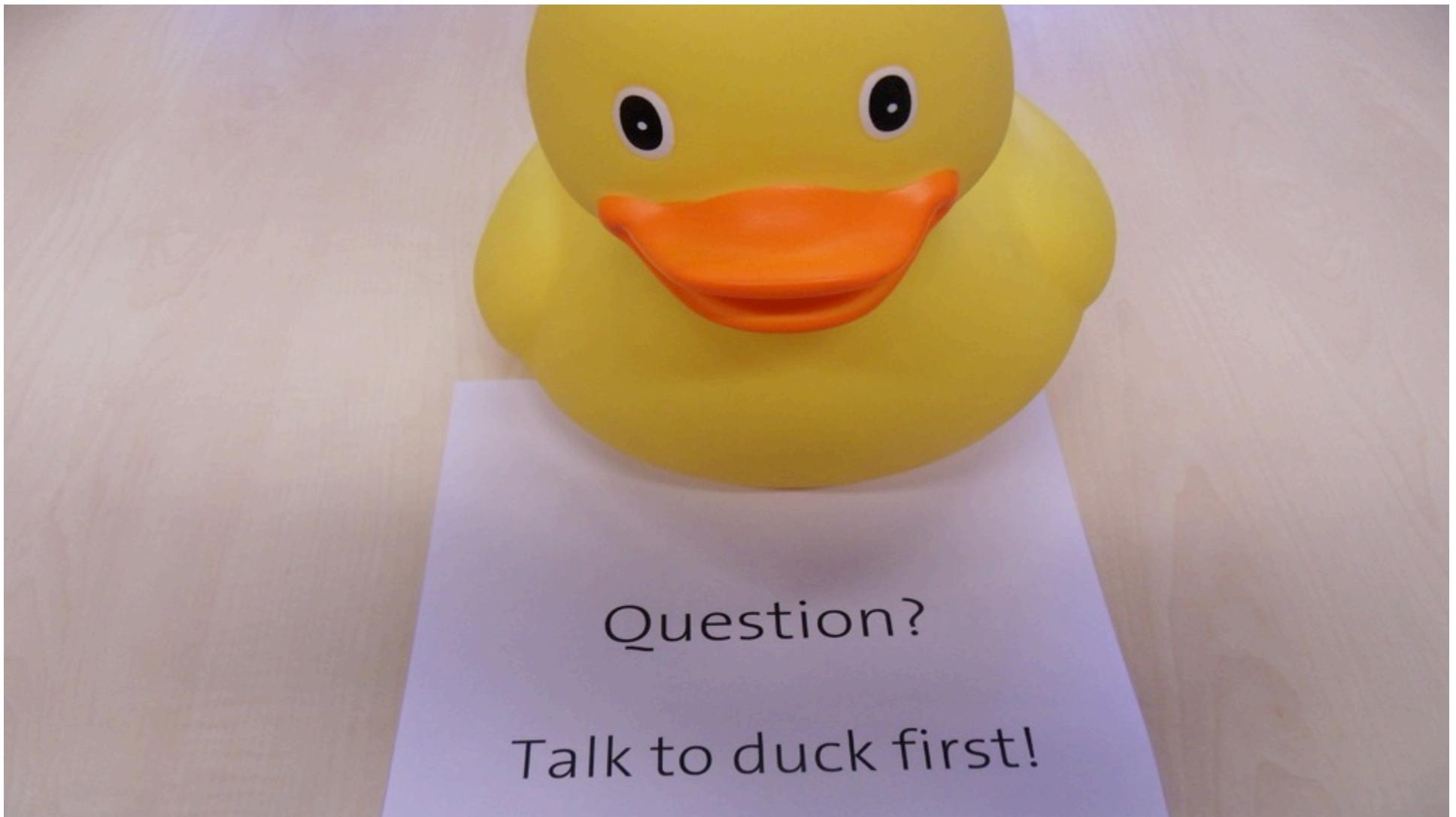
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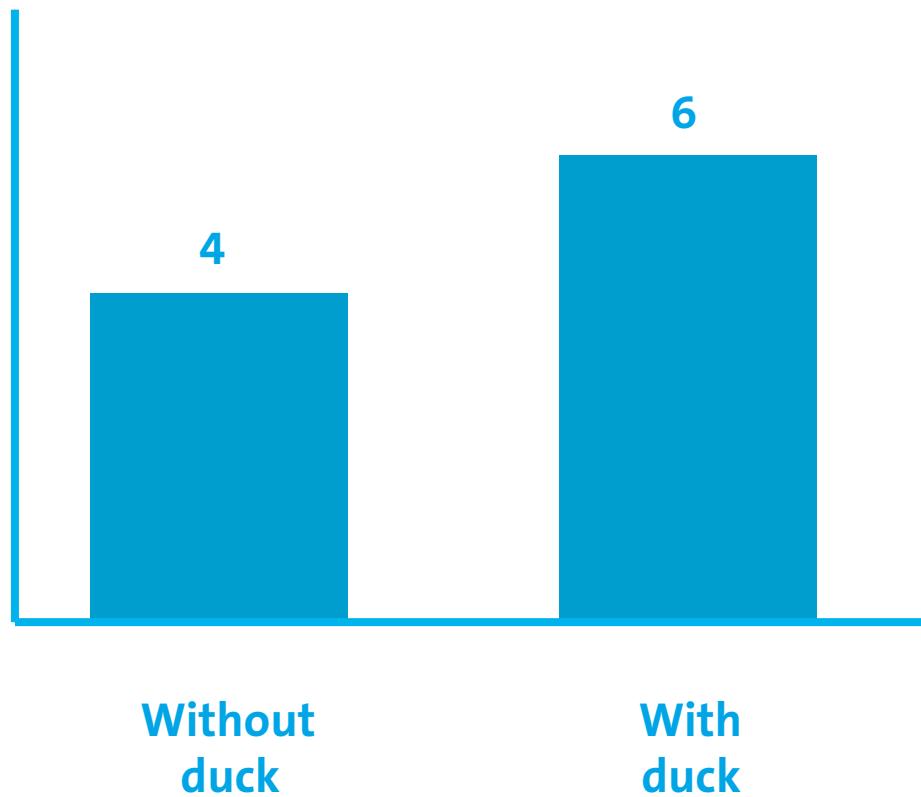
*“Introducing rubber ducking  
leads to fewer interruptions”*

**Are we being interrupted?**



Question?

Talk to duck first!



Construct

Internal

External

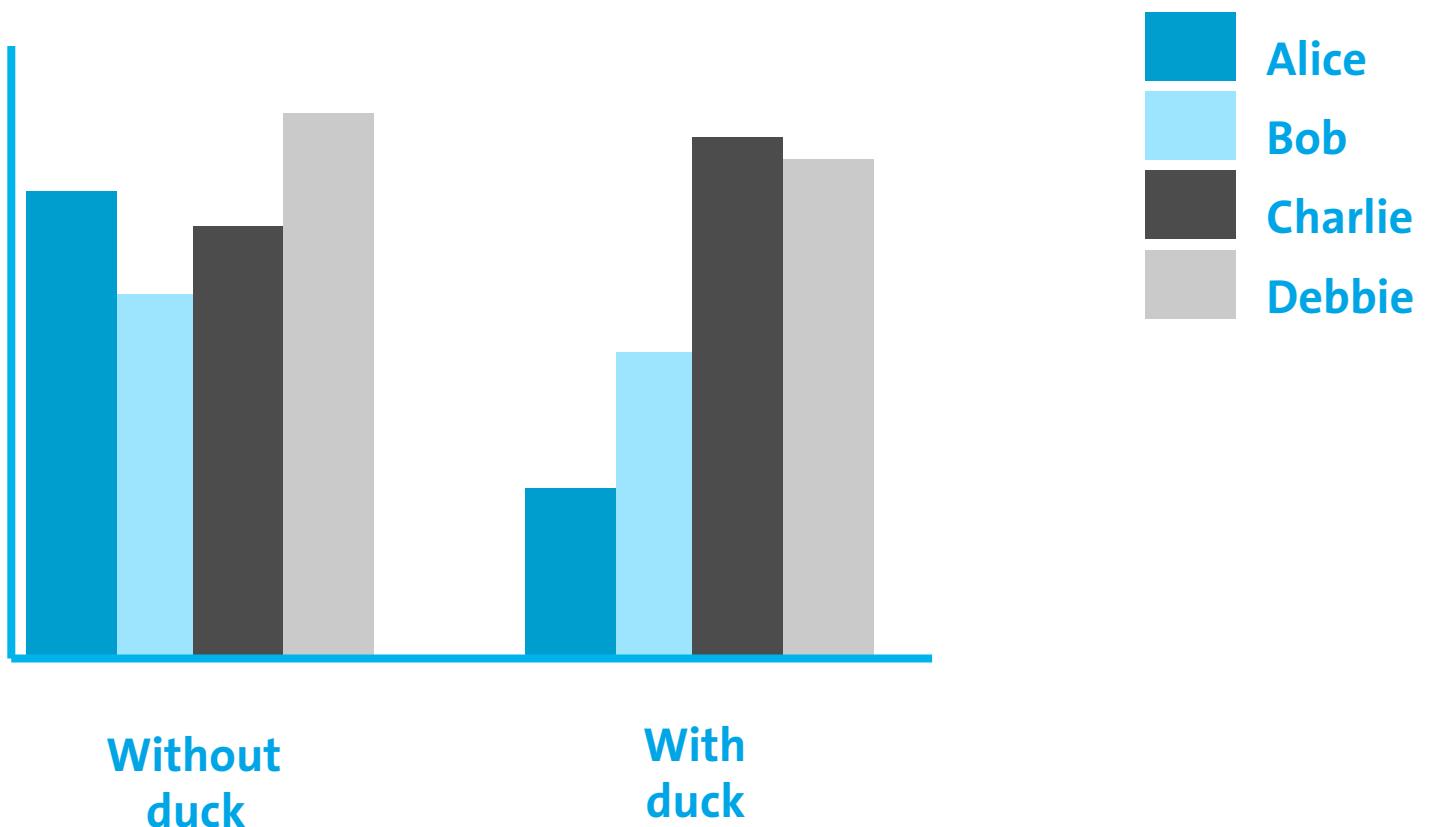
Conclusion

Threats to  
Validity

# A better design

	Alice*	Bob*	Charlie	Debbie
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				

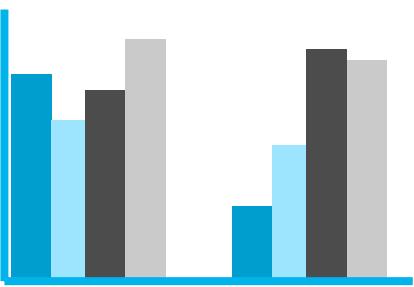
	Talked to the duck worked	Talked to the duck didn't work
Monday		
Tuesday		
Wednesday		
Thursday		
Friday		



*“I felt really weird talking to the duck, it was smiling to me all the time!”*

*“I took the duck home and lost  
it to my child, so I just talked to  
my mouse”*

*“Which ducks? I did not see any ducks. I finally managed to fix this issue that has been bugging me for days!”*



Report

A blue rounded rectangular box containing the word "Report" in white text.



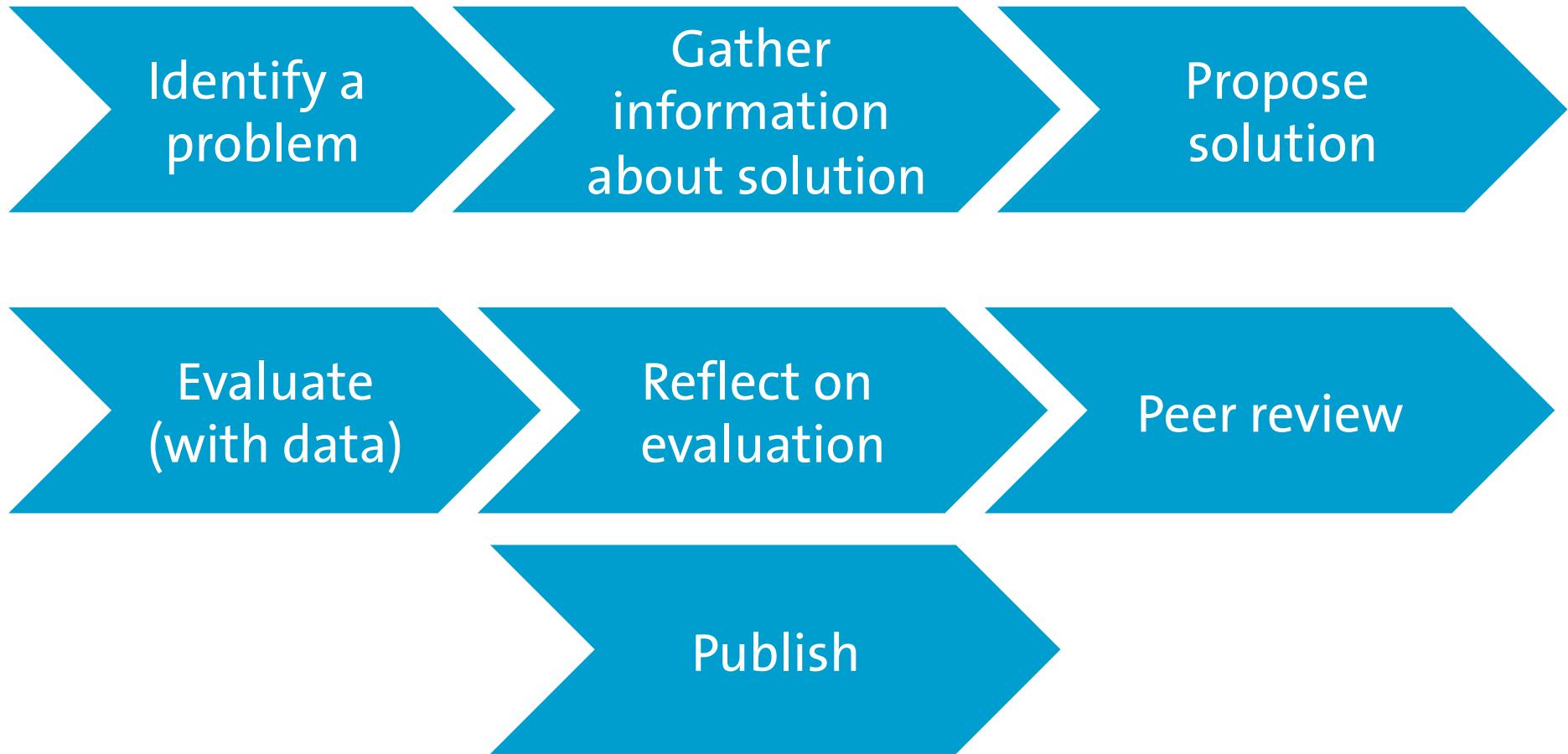
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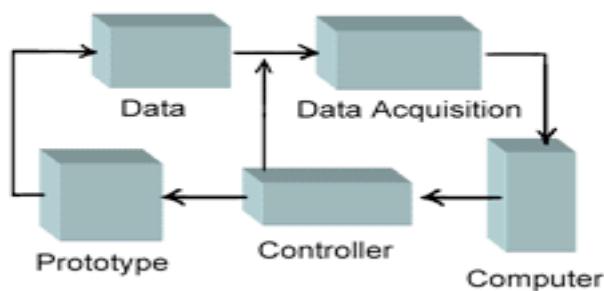
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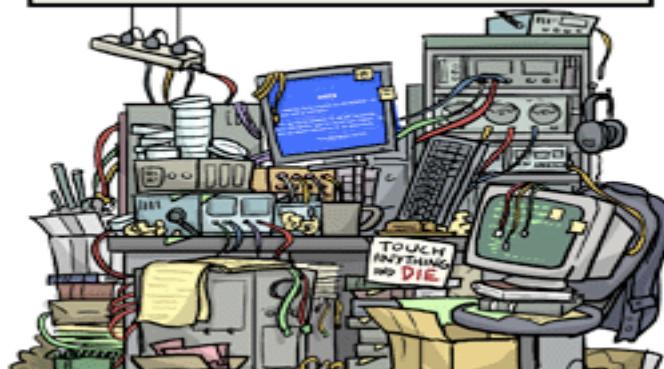


What your research supposedly looks like:



**Figure 1. Experimental Diagram**

What your research *actually* looks like:



**Figure 2. Experimental Mess**

Reflect on others

Formulate a claim

Collect data  
(repeatable)

Reflect on  
evidence

Share your results

Buy a rubber  
duck!

eric@sig.eu  
@EricBouwers