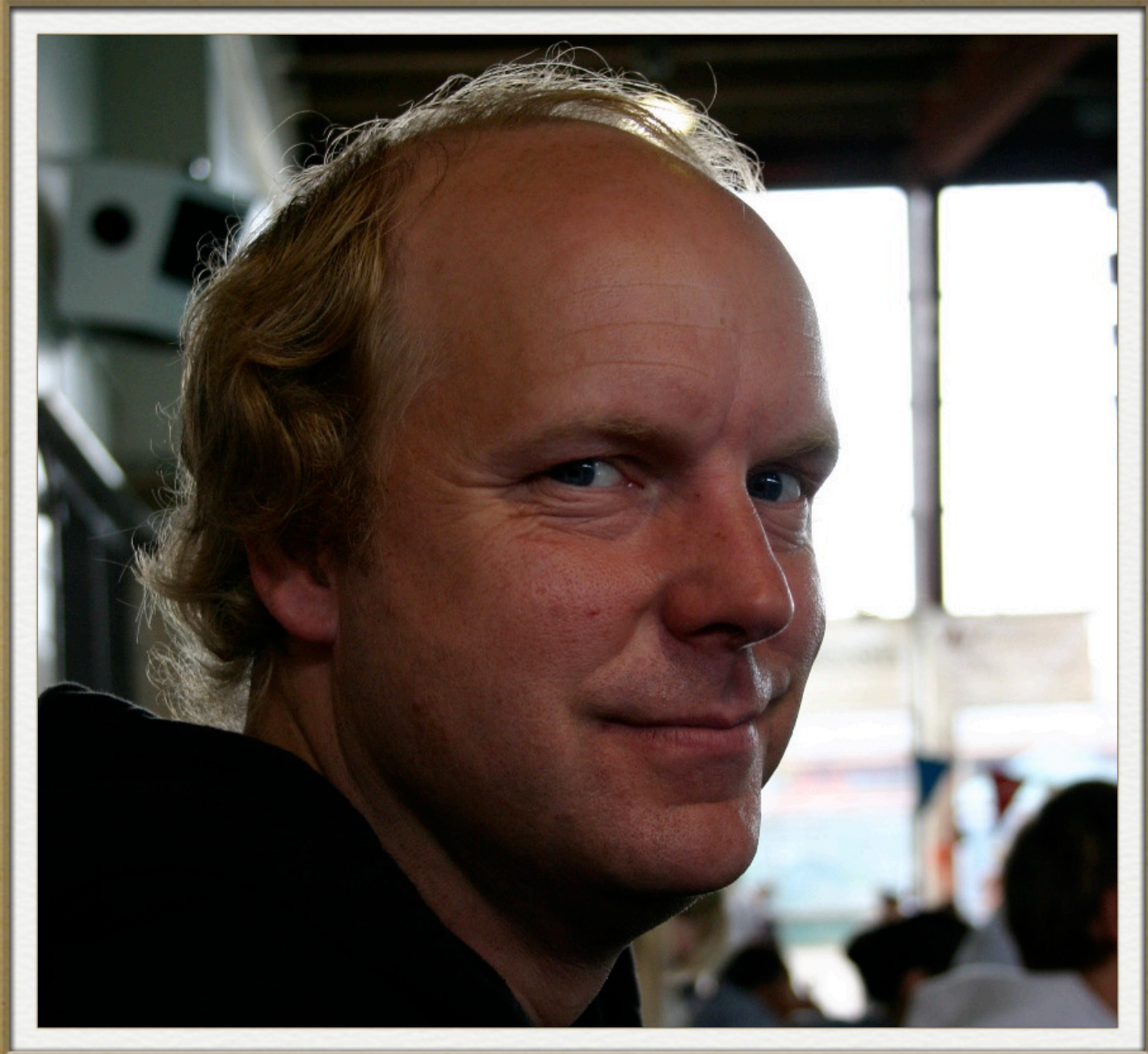# Test Driven Development

1930

1960

I think if people did these things today, we'd be in a lot less trouble. I know because there are people who do these things today, and they tend to stay out of trouble.

On the other hand, people who just throw code at a compile and say "it's unit tested" as soon as they see a green dot, tend to be in trouble all the time.

— Gerald M. Weinberg

1990

Get on with it!

TDD

- **Red:** Write a failing unit test — stop as soon as it fails! (not compiling is failing)

- **Green:** Write product code to make the test pass — stop as soon as it passes!

- **Refactor:** Remove duplication and fix bad names.

- Repeat!

Why not test-after?

- Segregate failures

- Pull design from desire to test

Why micro-iterations?

- Faster feedback is faster decision making

- Reduce sunk cost = Reduce risk

Why refactor?

- Defer design to when you know enough

- Continuously improve design

What TDD is not

- A substitute for thinking

- A replacement for architecture

- All the testing you need

What's a Good Test?

Good Tests

- Readable

- Trustworthy

- Maintainable

- (Fast)

Readable Tests

- Name tests after the behaviour they check

- Separate setup, action & checking

- Don't DRY out the context

- Don't use magic values

Maintainable Tests

- Factory methods

- Only test the public API

- Avoid logic like if's and for-loops

- Don't use dynamic values

- Decouple tests

Trustworthy Tests

- Use deterministic values

- Check coverage

- Separate unit and integration tests

Basic Correctness

Basic Correctness

- For every unit:

  - Verify correctness of exposed APIs

  - Verify correct use of dependent APIs

Unit Test Reviews

Test Reviews (like code reviews, but on tests) can offer you the best process for teaching and improving the quality of your code and your unit tests while implementing unit testing into your organization.

— Roy Osherove

http://artofunittesting.com/unit-testing-review-guidelines/

Conclusion

- Plan ahead a little

- Listen to the tests

- Maintainable, readable, trustworthy

- Basic correctness

- Unit test reviews

?