PROGRAMMING HAPPINESS

THINGS A DEVELOPER EXPERIENCE ENGINEER RARELY TALKS ABOUT

YOU'LL NEVER BELIEVE THIS ONE CRAZY TIP THAT WILL MAKE ALL DEVELOPERS HAPPIER AND MORE PRODUCTIVE!

… wait, how do I get ad-revenue from a slide show?

DONALD KNUTH

THINGS A COMPUTER SCIENTIST RARELY TALKS ABOUT

- Lectures @ MIT in 1999

- Book followed in 2001

- He spoke about religion, I won't.

- I'll talk about happiness

THINGS A COMPUTER SCIENTIST RARELY TALKS ABOUT

Donald E. Knuth
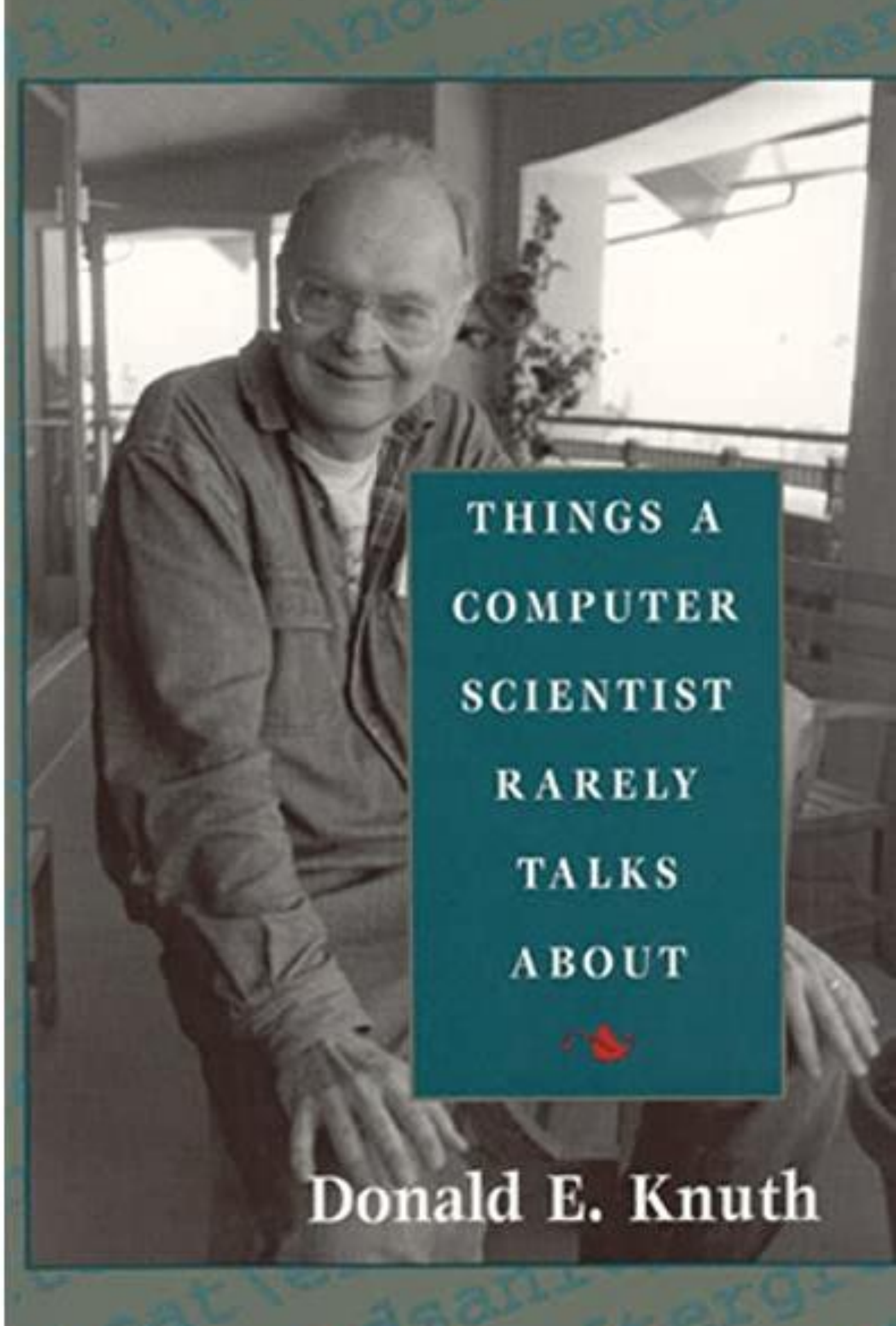
OH NOES! I'VE COME TO A HIPPY-DIPPY-FUN-IN-THE-SUN TALK ABOUT CRYSTALS AND AROMATHERAPY. WHAT THE HECK? I THOUGHT THIS WAS SUPPOSED TO BE ABOUT PROGRAMMING JAVA, AGILE OR SOMETHING ELSE LIKE THAT. :-(

WHY DO YOU CARE?

I'M A DEVELOPER EXPERIENCE ENGINEER

Developer eXperience Engineering is:

"An engineering effort using a holistic product design approach to refine a software developer's experience with a product."

Programmers are people too!
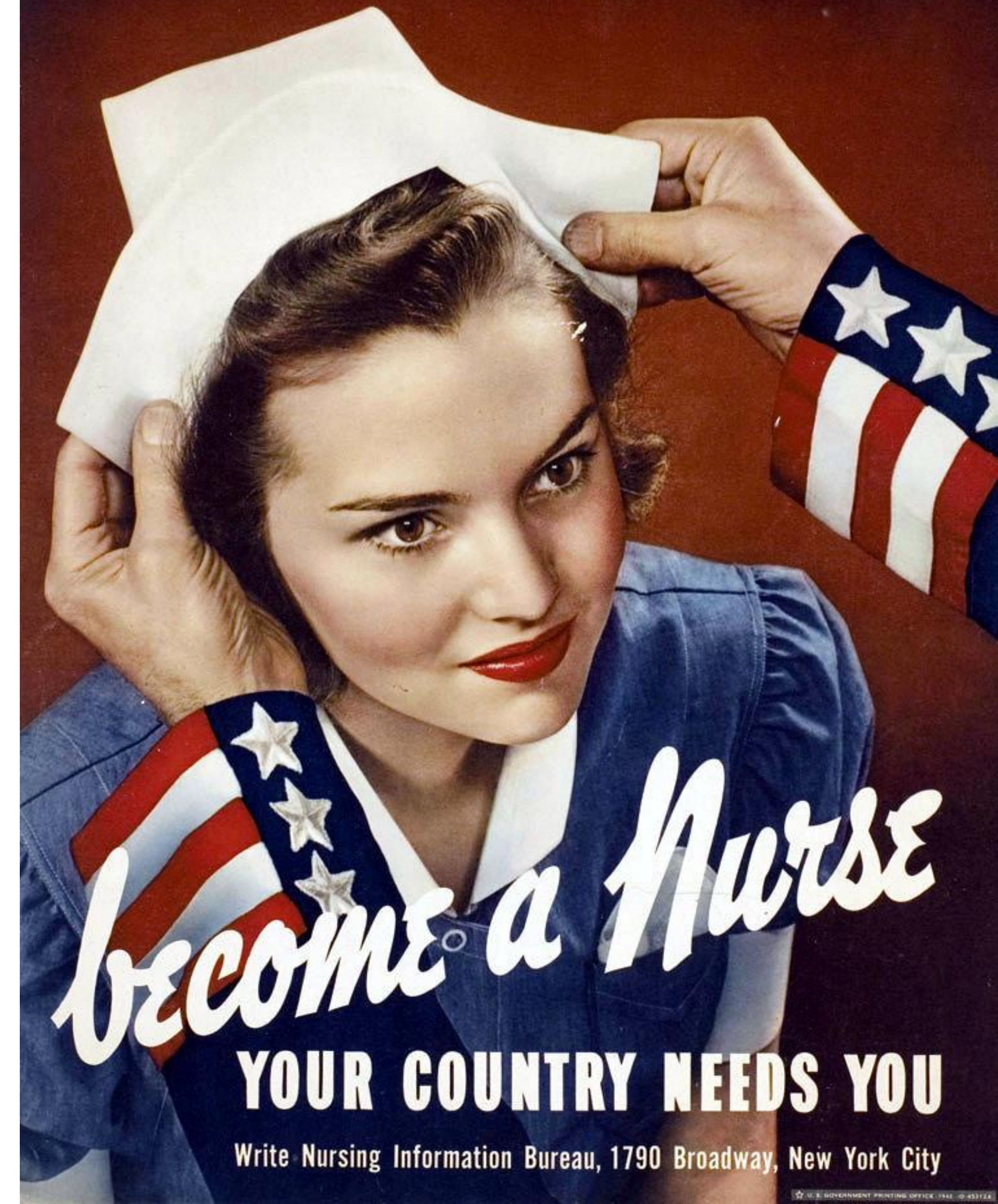
ITS GOOD BUSINESS

I'M UN-HIPPILY FACT DRIVEN

Happy developers are productive developers

Developers are hard to find and easy to lose

Understanding how you tick helps me do my job, and you do yours

I promise practical solutions

WHY HAPPINESS?

DEVELOPER CARE

A DevX engineer can code, document, design, test and teach to make product experience great.

What else can we do?

If only there were a venue where we could talk to engineers more generally?

LET'S START AT THE VERY BEGINNING

… A VERY GOOD PLACE TO START.

THE NATURE OF HAPPINESS

PERSONAL OBSERVATIONS

Happiness is a fleeting, ephemeral thing

Mostly I am content:

- **I recognise happiness as a distinct state**
- **Contentment is the absence of unhappiness**
  - **e.g. money is only a factor when it's missing ;-)**

WHEN DID SOFTWARE ENGINEERING MAKE YOU HAPPY?

PERSONAL OBSERVATIONS

Rewarding:

- **When a task is completed**

- **When I do something I've never done before**

- **When I get recognition from my peers**

- **When I see others benefitting from my work**

Sensational:

- **Those days when the code is just flowing out of me**

WHEN DID SOFTWARE ENGINEERING MAKE YOU UNHAPPY?

PERSONAL OBSERVATION

Obstructive:

- **When I couldn't "get into" a problem**

- **When I am unable to concentrate long enough**

Dull:

- **When things are too slow**

- **When it is too easy, or too repetitive**

Stressful:

- **When colleagues are too competitive**

- **When I feel ignored or powerless**

- **When I lack clear goals**

DEPRESSION

I AM LUCKY NOT TO HAVE DEPRESSION

Depression is not a mood fluctuation or simple emotional response.

This talk doesn't address depression - I don't have any answers - but talking about it is important.

Know that you are not alone.

- The WHO estimate 5% of adults suffer from depression globally.

- Depression in Germany affects 17% of people (Robert Koch Institute)

  - More people than the combined population of Berlin, Hamburg, Munich, Cologne, Frankfurt am Main, Stuttgart, Düsseldorf, Dortmund, Essen, Leipzig, Bremen, Dresden and Hanover.

LETS EXPLORE OUR BRAINS

DOPAMINE REWARD SYSTEM

COMPLETION AND REWARD

DOPAMINE

We receive focused waves of dopamine in the frontal-cortex when we achieve goals or satisfy needs.

Once we associate tasks with a potential reward we produce anticipatory dopamine.

More important for "incentive salience" than "hedonic impact"[1]

COMPLETION AND REWARD

DOPAMINE

We produce more dopamine when:

- we are in control of the outcome (<100% chance)

- when we cooperate with others or place social needs first.

Bigger rewards are required to motivate us to do more work

AUTONOMY

DOPAMINE

Autonomy is the single most important factor in workplace happiness. [6][7][8][9]

Autonomy is important to our dopamine rewards system.

- Not team level autonomy (it doesn't matter who you have to justify yourself to).

- Not democracy

- Autonomy means having clear goals set, but having the trust of *everyone* to reach the solution alone.

BOOSTING DOPAMINE

STUFF ANYONE CAN DO

People with higher levels are happier, and more motivated!

- Sleep properly [2]

- Listen to music (even at work!) [3]

- Get outside in the sunshine

- Exercise, meditate, garden, play with a pet

- Have human contact

ASIDE

PROGRAMMING ISN'T LIKE USING HUMAN LANGUAGE

CODE ISN'T LANGUAGE

ITS A PUZZLE

We barely activate areas of the brain used for language when reading/writing code. [4]

It's more like doing crosswords or sudoku.

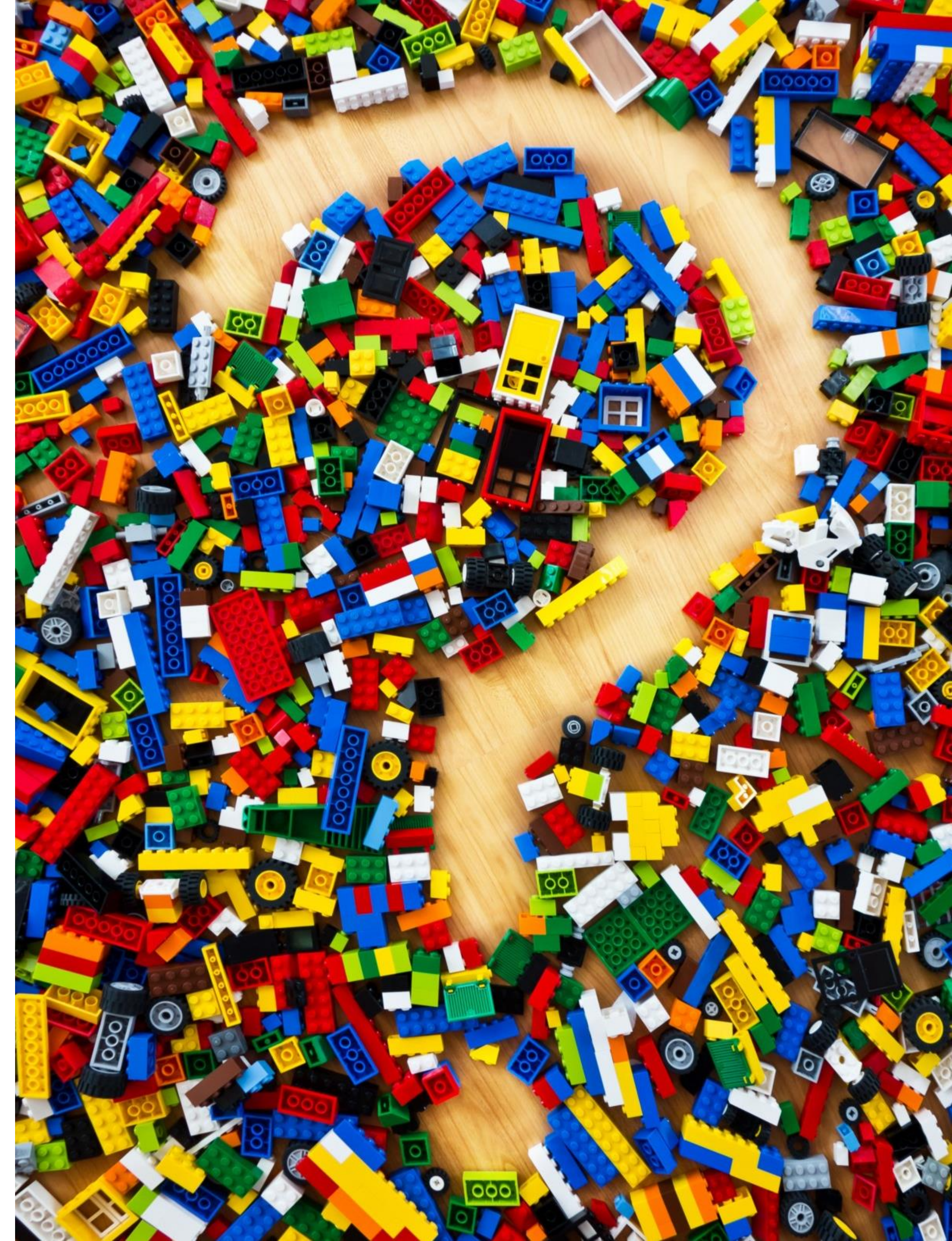This is probably why rubber ducking works!

PROGRAMMING CHANGES YOU

[POSSIBLY]

Continuous stimulation via programming might even lead to specialised structure developing in the brain.

This might take 30 or 40 years [5]

FLOW

WHEN THE CODE JUST FLOWS

FLOW

Csikszentmihalyi describes eight characteristics of flow: [10]

- Complete concentration on the task

- Clarity of goals and reward in mind and immediate feedback.

- Transformation of time (speeding up/slowing down)

- The experience is intrinsically rewarding

- Effortlessness and ease.

- There is a balance between challenge and skills

- Actions and awareness are merged, losing self-conscious rumination

- There is a feeling of control over the task
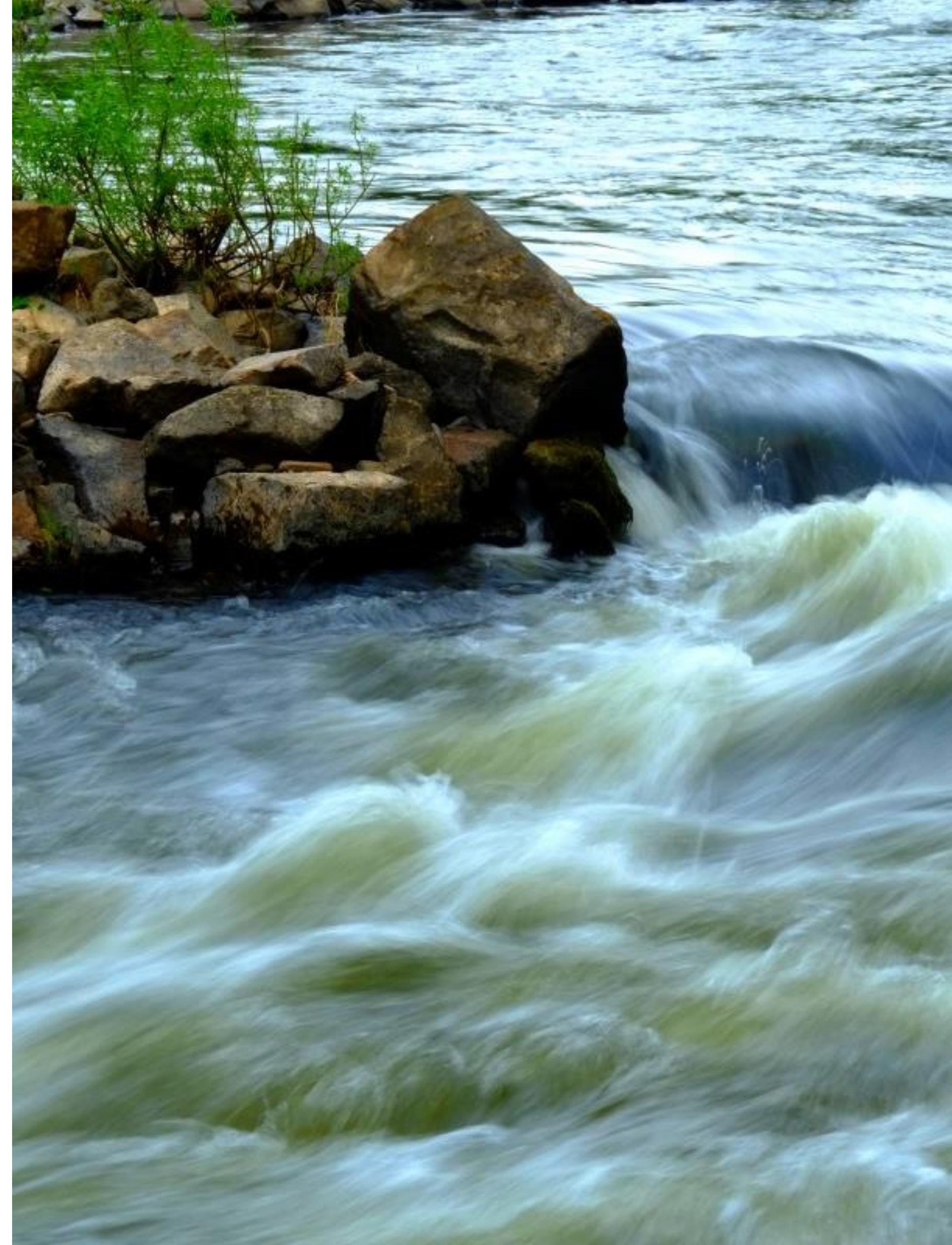
RARE, BUT HYPERPRODUCTIVE

FLOW

You need just the right conditions.

It feels *great*

It's extremely productive.

The myth of the 10x programmer probably exists because "special" people are allowed the space.
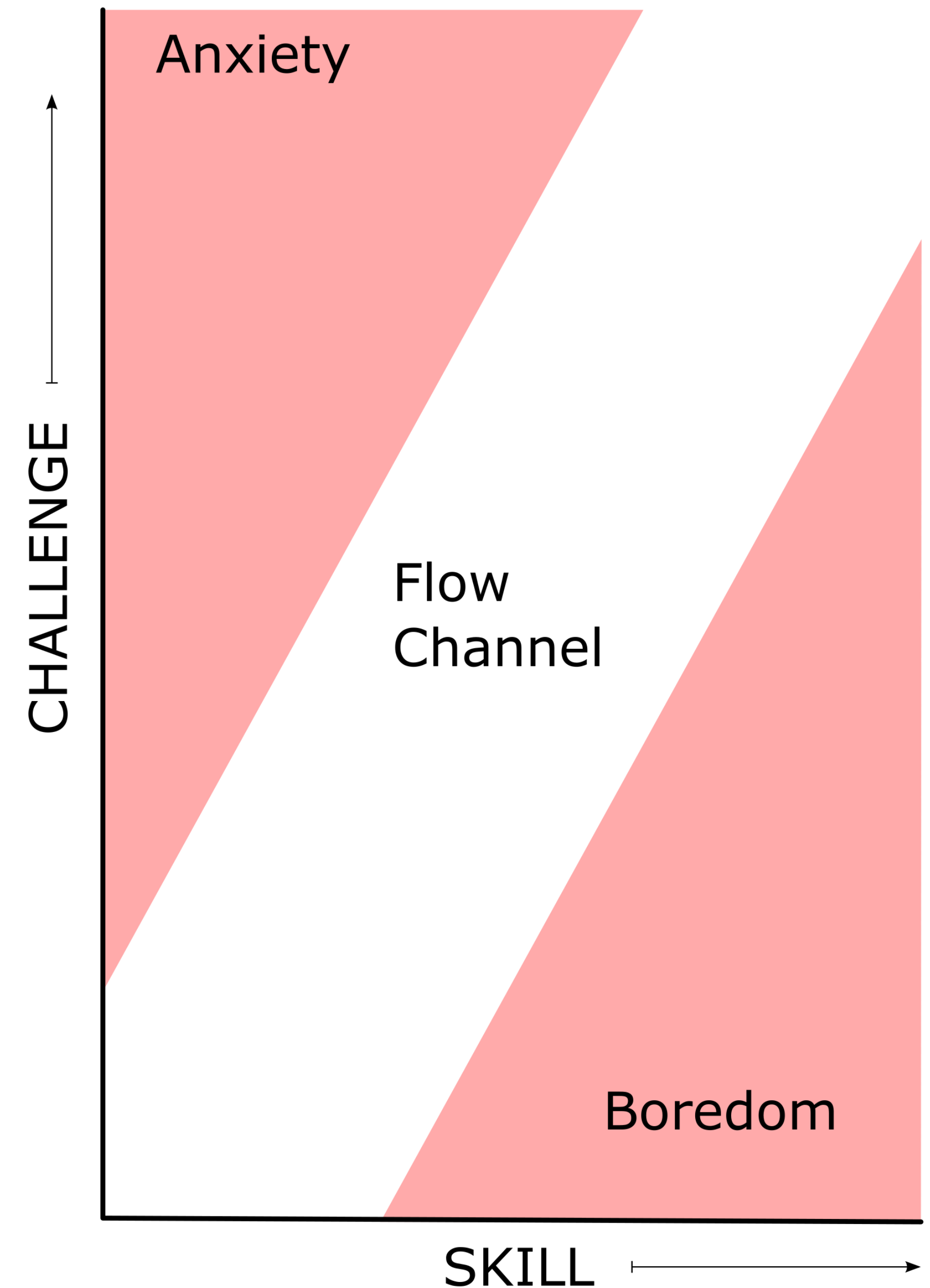
ROLE OF CHALLENGE

FLOW

Vygotsky's zone of proximal development [11]

You only achieve flow within the "flow channel".

You might have to overcome your brains instinct to avoid challenge.

AUTONOMY AGAIN

FLOW

Autonomy is a product of trust:

- Trust people to work alone.

- Trust your colleagues to get it right without you.

- Trust juniors to do things they've never done.

- Don't make yourself a part of every decision.

UNINTERRUPTED FOCUS

FLOW

REQUIRES TIGHT FOCUS, CLEARLY DEFINED GOALS

FLOW STATES REQUIRE REDUCED PREFRONTAL-CORTEX ACTIVITY - "HYPOFRONTALITY" ->

NO HUMAN INTERACTION

HABITS OF A HAPPY PROGRAMMING TEAM

WHAT DO WE NEED TO ACHIEVE?

KEY FACTORS IN OUR HAPPINESS

the dopamine reward system

Make space for flow:

- quick, clear wins

- Create psychological safety

- social

- Long blocks of focused time

- autonomous

Set the right challenge level

Remove blockers

Optimise our working life to trigger

HAVE HUMAN CONTACT, BUT NOT ALL THE TIME.

PLAN TO DO POSSIBLE FLOW WORK WHEN YOU'RE ALONE

PLAN WHAT NEEDS TO BE DONE, BUT LEAVE THE "HOW" FOR INDIVIDUALS.*

AUTONOMY IS NOT DEMOCRACY.

* Bonus: shorter planning meetings!

FAVOUR CI/CD OVER REVIEW (PSYCHOLOGICAL SAFETY)

MAKE SMALL TASKS WITH CLEARLY
DEFINED COMPLETION STATES

(YAY AGILE, YAY TDD)

OPTIMISE PROCESSES FOR SHORT FEEDBACK LOOPS

FIX BUGS IN YOUR OPEN SOURCE DEPENDENCIES.

DON'T BE THE "GO-TO" PERSON.

WRITE THE "GO-TO" DOCUMENT.

See also:
Software engineers don't scale ... or how I learned to stop worrying and love commenting my code.

RFCS NOT MEETINGS.

ASYNCHRONOUS WORK MAKES SPACE FOR FLOW.

DELEGATE, AUTOMATE OR "GAMIFY" THINGS THAT ARE NOT CHALLENGING ENOUGH

USE PAIRING/MOBBING TO GET PAST THINGS THAT ARE TOO CHALLENGING

DON'T DO BLOG-POST DRIVEN DEVELOPMENT

TRY THINKING (IT'S FUN!)

TRUST YOUR COLLEAGUES

REMEMBER:
CLEAR GOALS
+ TRUST
+ SPACE
= HAPPINESS.

THAT ONE CRAZY TIP….

STOP

IT

WITH

THE

DAMNED

MEETINGS

ALREADY

FIN

CITATIONS

JUST THE FACTS M'AM

[1] Berridge KC, Robinson TE. What is the role of dopamine in reward: hedonic impact, reward learning, or incentive salience? Brain Res Brain Res Rev. 1998 Dec;28(3):309-69. doi: 10.1016/s0165-0173(98)00019-8. PMID: 9858756.

[2] https://www.ncbi.nlm.nih.gov/pubmed/29073398

[3] https://www.ncbi.nlm.nih.gov/pubmed/21217764

[4] https://elifesciences.org/articles/58906

[5] https://news.mit.edu/2020/brain-reading-computer-code-1215

CITATIONS

JUST THE FACTS M'AM

[6] Legault, Lisa. (2016). The Need for Autonomy. Encyclopedia of Personality and Individual Differences. 10.1007/978-3-319-28099-8_1120-1.

[7] Niemiec, C. P., & Ryan, R. M. (2013). What makes for a life well lived? Autonomy and its relation to full functioning and organismic wellness. In The Oxford hand- book of happiness (pp. 214–226). Oxford: Oxford University Press

[8] Moller, A. C., & Deci, E. L. (2010). Interpersonal control, dehumanization, and violence: A self-determination theory perspective. Group Processes & Intergroup Relations, 13, 41 –53

[9] Spreitzer, Gretchen (2008), Taking Stock: A Review of More Than Twenty Years of Research on Empowerment at Work

CITATIONS

JUST THE FACTS M'AM

[10] Csikszentmihalyi, Mihaly. (1990). Flow: The Psychology of Optimal Experience.

[11] Vygotsky, L. S. (1978). Mind in society: The development of higher psychological processes. Cambridge, MA: Harvard University Press.

CREDITS

IMAGES

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One image (the statue of a man standing on a golden ball) was taken by me in Salzburg, Austria in 2011.