

SUCCESSFUL STRATEGIES FOR IMPLEMENTING AI CONTENT WORKFLOWS

The generic buzzword AI always refers to LLMs, multi-modal models and other generative AI technologies.

MACHINE LEARNING EXISTS
FOR QUITE SOME TIME...

...BUT USING FOUNDATION-MODEL-
LLMS IS A ENTIRELY NEW FIELD

THERE ARE NO EXPERTS FOR LLM-APPLICATION AND -INTEGRATION

The field has existed for less than 2 years. Best practices, such as prompting strategies and agentic workflows, are only just emerging.

DANIEL



FELIX



Three men are standing in a hallway with a series of arches in the background. The man on the left is wearing a blue sweater and has a beard. The man in the middle is wearing a dark hoodie and a brown jacket, and has glasses. The man on the right is wearing a green jacket and has glasses. The text 'ROLAND ME :)' is overlaid in the top right. Three circular callouts are overlaid on the bottom: a green circle on the left, a white circle in the middle, and a green circle on the right.

ROLAND ME :)

AWARDS
WON

NUMEROUS
PRODUCTION
CASES

MANY
1000HRS
SPENT ON AI



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2024



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THREE BIG TOPICS

VISION & FUTURE

Hype & AI Circus

Scaling Laws, 1000x GPT-4

Objective Functions

SCIENCE

Research

Why & how does it work

Deep Networks & Interpretability

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APPLICATION

Whats currently possible

State-of-the-art

Where is the limit?

TODAY WE TALK ABOUT...

- \\ **USEFUL CONCEPTS TO THINK ABOUT LLM**
- \\ **FROM PROMPTS TO AUTOMATION**
- \\ **COMMON PITFALLS**

USEFUL CONCEPTS TO THINK ABOUT LLM

\\ LLM IS A COLLECTION OF EXAMPLES OF HUMAN THINKING

It is a system for thought processes, not a knowledge database!

For the developers: statistical model of a knowledge graph,
and domain-dependent reasoning via pattern matching

USEFUL CONCEPTS TO THINK ABOUT LLM

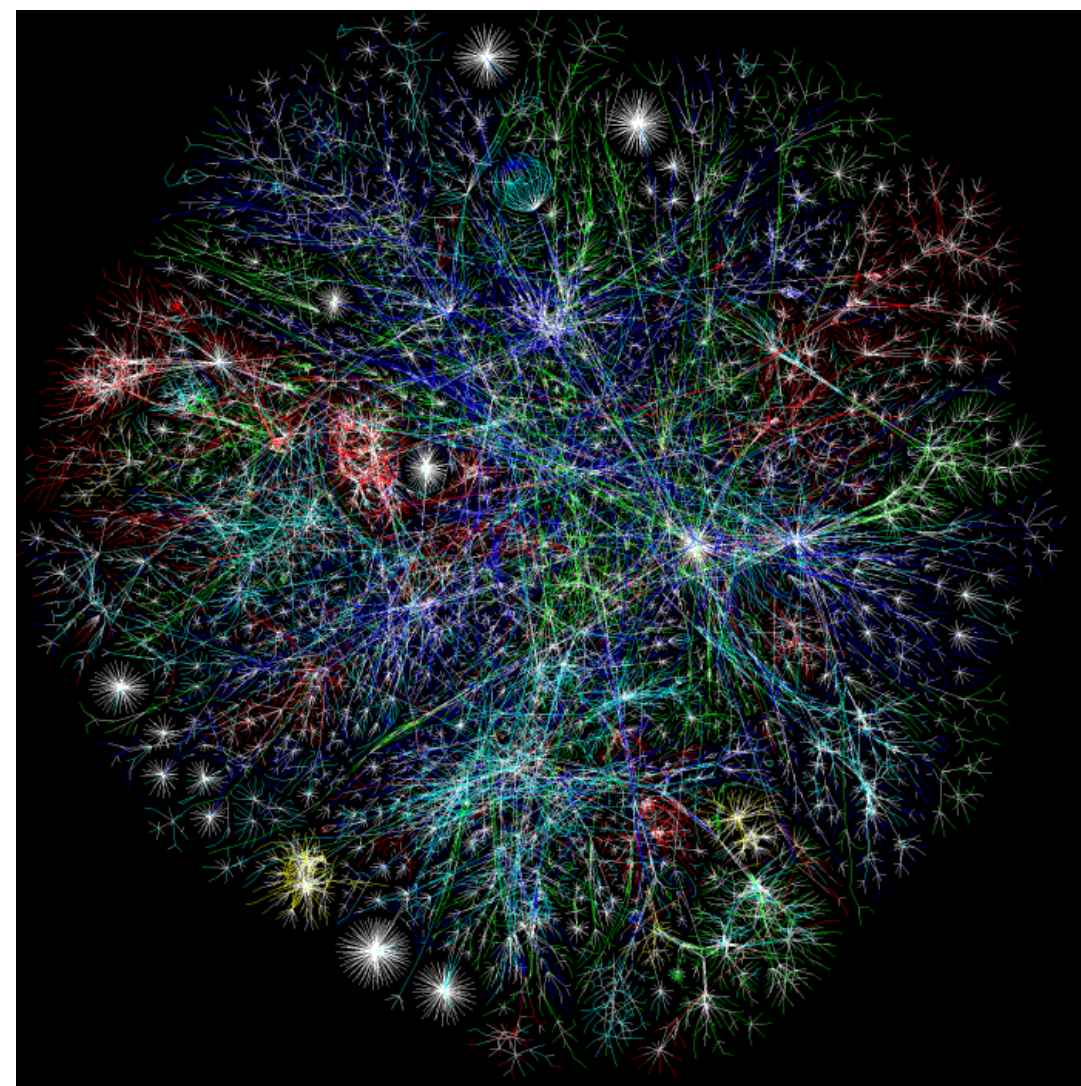
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\\ MODEL TRAINING LEARNS CONCEPTS

MODEL TRAINING LEARNS CONCEPTS



Part of the internet,
~10TB of text



6,000 GPUs for 12 days, ~\$2M
~1e24 FLOPS



parameters.zip

~140GB file

„BASE MODELS LEARN POWERFUL,
GENERAL REPRESENTATIONS
[...] IN UNSUPERVISED LEARNING“

ANDREJ KARPATHY

Recommended sources:

[Intro to Large Language Models, Andrej Karpathy](#), as well as [State of GPT @ Microsoft Build](#)

USEFUL CONCEPTS

\\ GPT IS A COLLECTION OF EXAMPLES OF HUMAN THINKING

It is a system for thought processes, not a knowledge database!

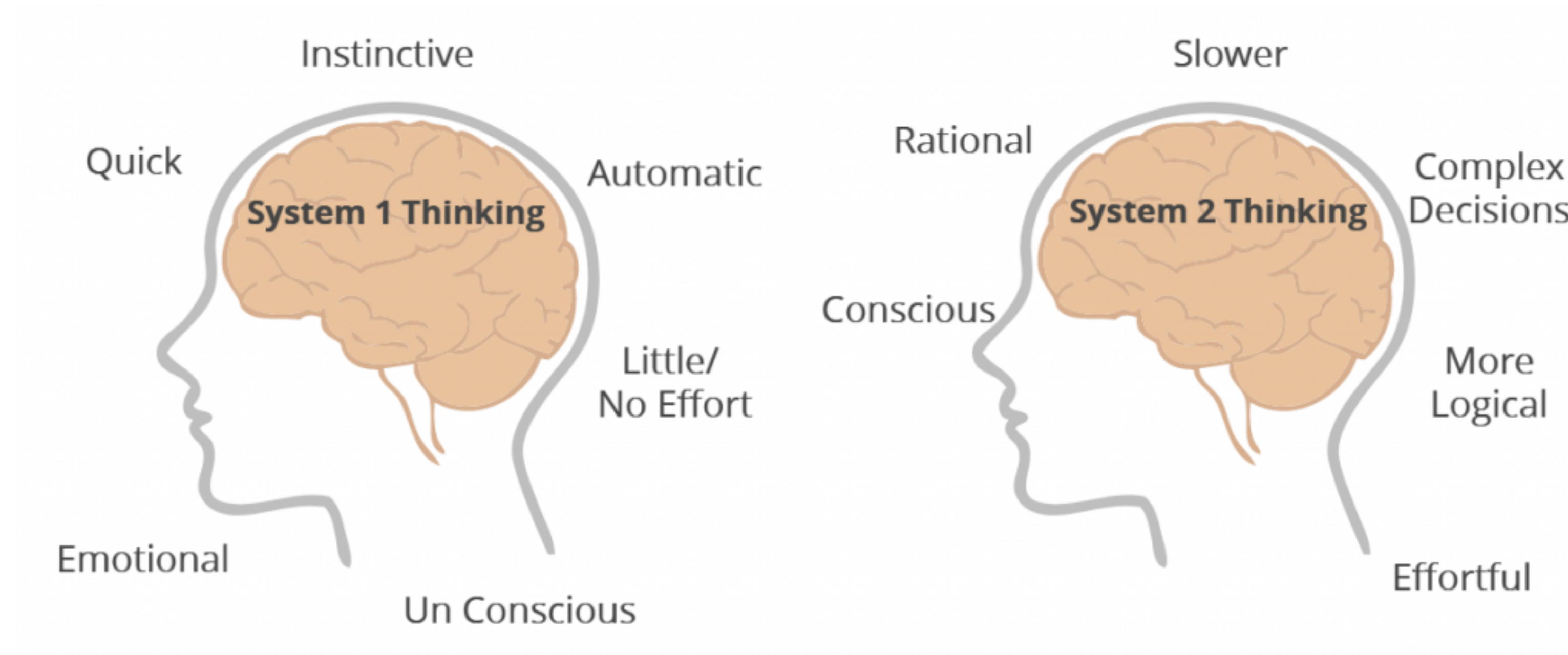
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\\ MODEL TRAINING LEARNS CONCEPTS

\\ NOT A STOCHASTIC PARROT THAT "ONLY" GUESSES THE NEXT WORD

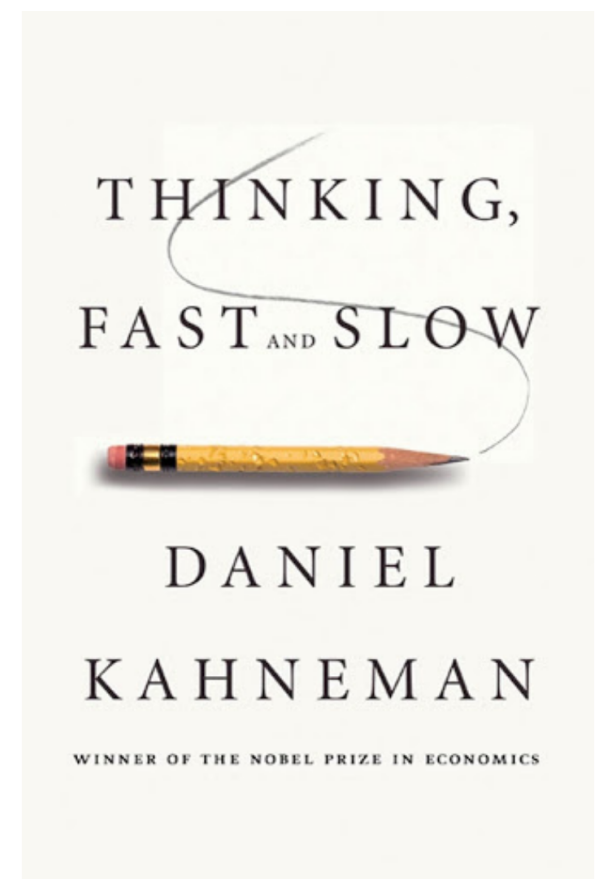
Models learn abstractions to compress their knowledge

THINKING FAST AND SLOW



2 + 2 =

17 x 24 =



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Models learn abstractions to compress their knowledge

\\ MODELS ACT INTUITIVE (SYSTEM-1)

This is a useful concept, but not always factually correct

INTUITION IS GOOD ENOUGH
FOR THOUSANDS OF DECISIONS A DAY

THREE APPLICATION FIELDS

CREATIVITY

Creating a mix of suggestions and picking the most suitable one.

JUNIOR COPILOT

Delegating simple tasks to a co-pilot to reduce mental load.

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AUTOMATION

Unstructured texts and images as input and output make new automations possible.

FROM PROMPTS TO AUTOMATION

Please write an essay for topic X
from start to finish in one go without
using the delete key.

Zero-Shot Prompting



WORKFLOW DESIGN

- // Write a content outline
- // Do web research
- // Revise the content outline
- // Write a first draft
- // Critique the draft
- // Revise the draft ...

EXAMPLE: ARTICLE SUMMARIZER



You are the world's best journalist
and work for a major news platform



Values: you pay attention to precise and relevant
information, accessible and understandable



Approach:
Identify the key points, logical structure, ...

EXAMPLE: ARTICLE SUMMARIZER

WORKFLOW DESIGN

- \\ Identify 5-10 key points from the article.
- \\ Collect the most important figures from the article as a list.
- \\ Create a summary (incl. style & good examples)
- \\ Check all facts and quotes



Further reading:

Self-Refine: Iterative Refinement with Self-Feedback

Reflexion: Language Agents with Verbal Reinforcement

Learning

FROM PROMPTS TO AUTOMATION

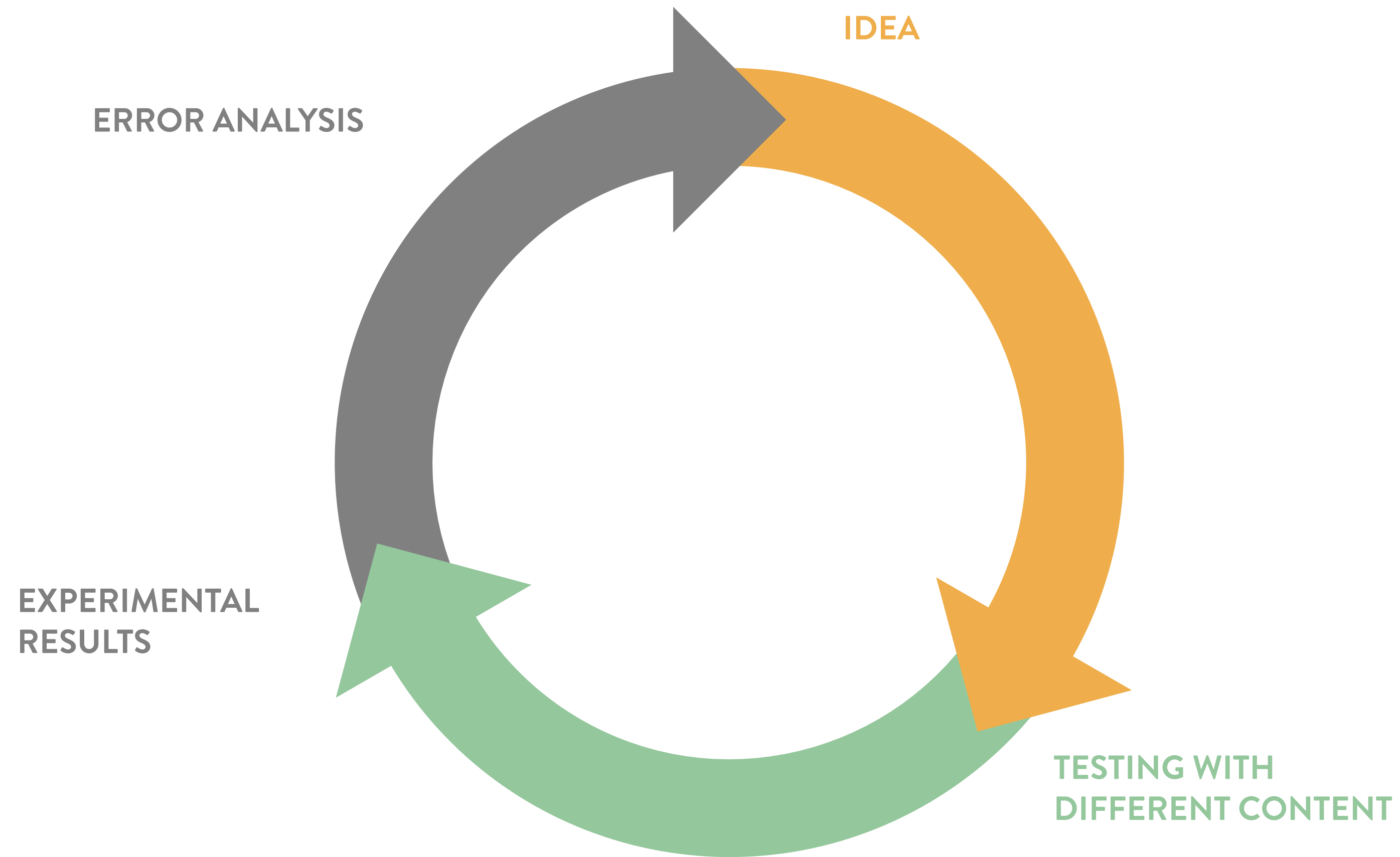
\\ IF POSSIBLE: USE A FIXED WORKFLOW

This leads to reliable and easy-to-test automations

\\ ITERATIVE PROMPT DEVELOPMENT

Ask GPT for good workflow-designs: „You are the world’s best X, how would you do Y?“

ITERATIVE PROMPT DEVELOPMENT



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\\ AGENTIC REASONING DESIGN PATTERNS

More flexibility while having more complexity

FROM PROMPTS TO AUTOMATION

\\ REFLECTION

\\ TOOL-USE

RELIABLE
APPLICATIONS

\\ PLANNING

\\ MULTI-AGENT COLLABORATION

EXPERIMENTAL
APPLICATIONS

\\ FUTURE SIMULATIONS

\\ SELF-OPTIMIZING LOOPS

CURRENTLY NOT
POSSIBLE WITH LLMs

Further reading:
[What's next for AI agentic workflows von Andrew Ng](#)

COMMON PITFALLS

\\ LET'S DO AI! BUT WHAT ABOUT THE USER?

What does he want to achieve? What can be done with standard-software? How can AI enhance here?

\\ LET'S BUILD A CHAT BOT!

Usually, a chat bot is not the best UI for a specific task

\\ LLMS ARE MAGIC AND YOU SHOULD TRUST THEM COMPLETELY

You need impossible-to-solve test cases in order to see where AI is hallucinating

\\ LLMS ARE SAFE WITH ARBITRARY INPUTS

Jailbreaking, Prompt injection, Data poisoning, Adversarial inputs, Insecure output handling...

\\ „AI IS TOO EXPENSIVE“ & „AI IS NOT RELIABLE ENOUGH“

LLMs are constantly getting better and cheaper. The best time to start is now!

Microsoft is planning to spend 100B\$, Google wants to spend more.

LET'S TALK ABOUT A SIMPLE EXAMPLE

NORMALCY BIAS

HOW CAN YOU START?

WHICH ACTIVITIES ARE THE MOST **TEDIOUS**,
MOST **BORING** AND **TIME-CONSUMING**?

WHAT DO I AVOID BECAUSE IT'S
JUST TOO **EXHAUSTING**?

Example: meta descriptions und image alternate texts for websites

WHICH DATA WOULD YOU NOT TOUCH?

Example: check for health promises, check contracts for terms, discounts, etc.

WHAT WOULD YOU DO,
IF YOU HAD **100 JUNIOR-EMPLOYEES**,
THAT WORK FOR YOU?

IT IS JUST THE BEGINNING

LET'S BUILD
THE FUTURE TOGETHER

ROLAND SCHÜTZ

rs@codeq.at

+43 676 45 16 731

