An Introduction to Vibe Coding

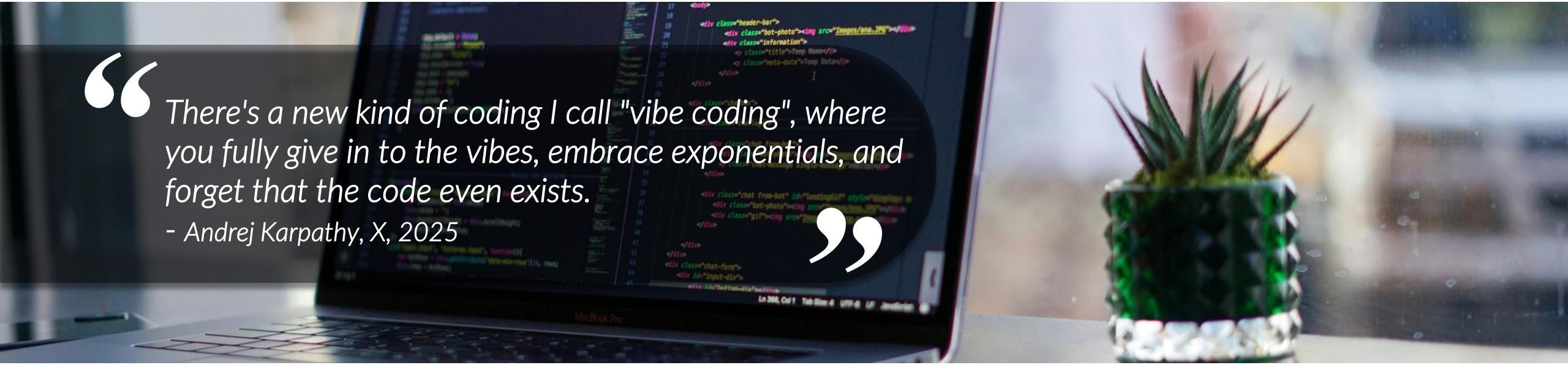
A practical guide primarily for non-programmers of various backgrounds who like to create things.

Maxime Van Haeverbeke: postdoctoral researcher in mathematical modelling at the faculty of Bioscience engineering

GHENT UNIVERSITY

What is Vibe Coding?

Differences with traditional ChatGPT



ChatGPT and its equivalents:

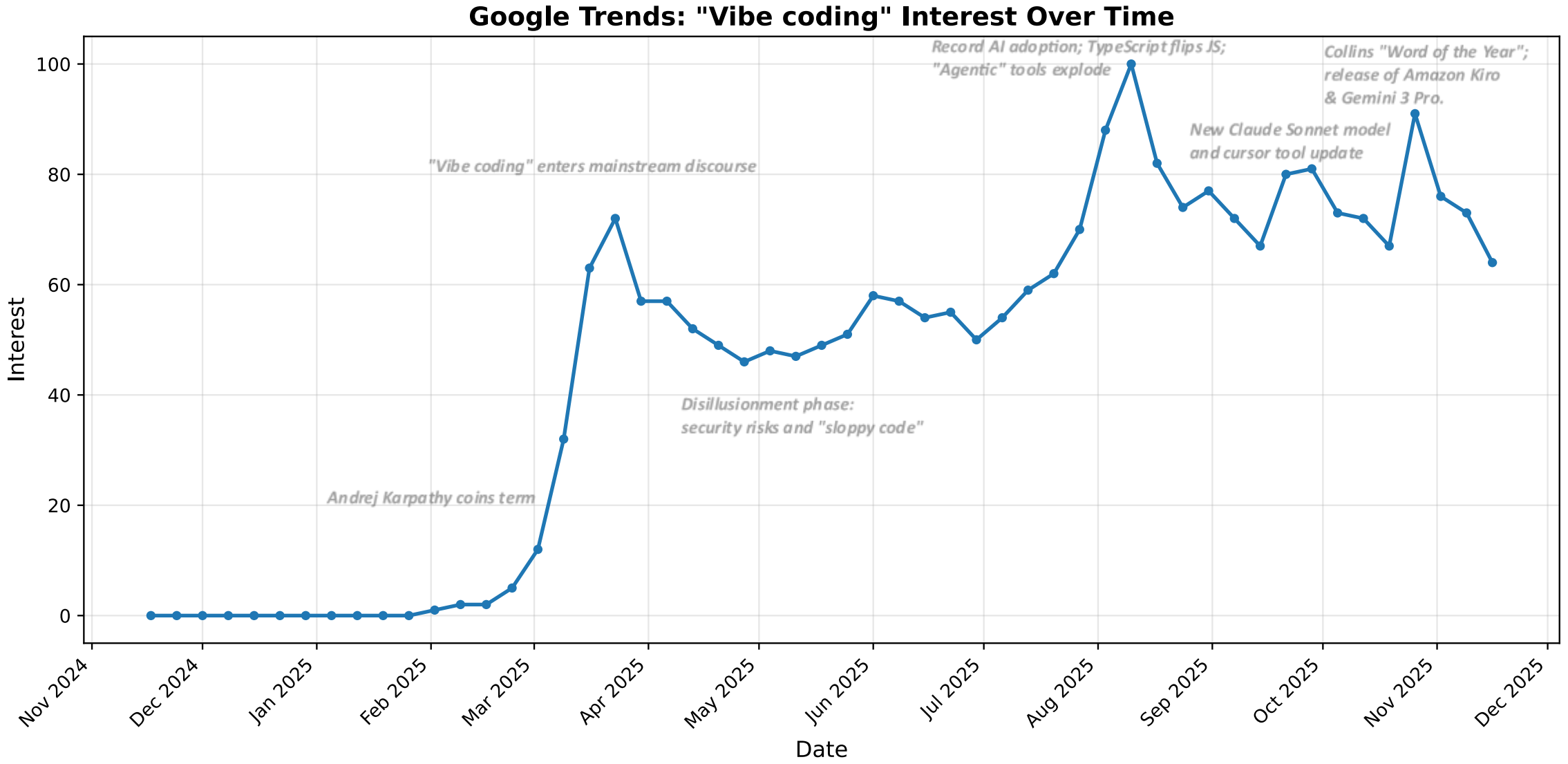
- Conversational interaction
- Step-by-step reasoning
- Limited context
- Slower iteration loop

Vibe coding (agentic programming):

- Direct code manipulation
- Fast, fluid iteration
- State-aware
- Execution-oriented

GHENT UNIVERSITY

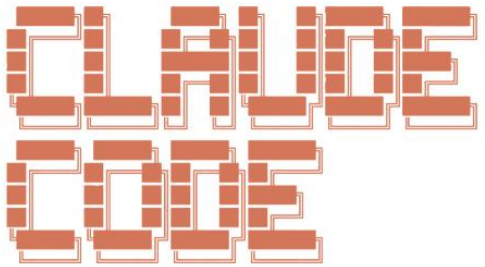
Self intro through *vibe coding* + poll



GHENT UNIVERSITY

A deluge of tools

Some of them are extremely fast-growing companies with current valuations in the billions.



GHENT UNIVERSITY

The controversy

We should know what to use it for. And what not to use it for.

> *Vibe coding is taking the world by storm. And as with any good storm, some people frown and stay inside, while others let the wind carry them away*
> - Markus Borg, *2025*

Arguments for vibe coding:

- A democratizing force for non-technical visionaries
- Create quick and effective prototypes for your ideas
- Can be very effective if used properly and for the right applications
- It's fun, not need to take it too seriously
- The tools are still evolving quickly!

Arguments against vibe coding:

- Sustainability and ethical issues of LLMs in general
- May negatively impact the learning process of junior programmers (although some argue that it actually helps learning too)
- Drift in code quality and clarity, complicating collaborations, hallucinations
- Hard to scale
- Limited trustworthiness for high-stakes applications

MCPs might be the solution

GHENT UNIVERSITY

The controversy

We should know what to use it for. And what not to use it for.

BUSINESS INSIDER

Subscribe | Newsletters

DOW JONES -0.92% NASDAQ -1.01% S&P 500 -0.77% AAPL -0.1% NVDA -2.04% MSFT -2.8% AMZN -3.29% META -1.6% TSLA -1.58%

AI

Replit's CEO apologizes after its AI agent wiped a company's code base in a test run and lied about it

By Lee Chong Ming + Follow

DE TIJD

Nieuws Beleggen LIVE Mijn Geld Sabato

Home Meest recent Finance Avenue Regering De Wever Podcasts Opinie Politiek & econom

NIEUWS | DOSSIERS | DE VERDIEPING

ANALYSE

Iedereen programmeur met 'vibe coding', maar de bugs moet je er bijnemen

SecurityBrief AUSTRALIA

TechDay

Guides

Search

cloud security # cybersecurity # endpoint protection # firewalls # ransomware

devops # apm # risk & compliance

Businesses warned on risks as 'vibe coding' AI tools surge

AI / FRONTEND DEVELOPMENT / SOFTWARE DEVELOPMENT / TECH CULTURE

AI Contrarians on the Problems With Vibe Coding

As the software industry embraces AI, some developers warn about the long-term costs and effects of vibe coding — particularly for junior devs.

Aug 26th, 2025 11:00am by Loraine Lawson

kaspersky daily

My Account

Solutions Industries Products Services Resource Center About Us GDPR Blog Secure Futures

AI

Search blog posts

The hidden dangers of AI coding

How AI-generated code is changing cybersecurity — and what developers and "vibe coders" should expect.

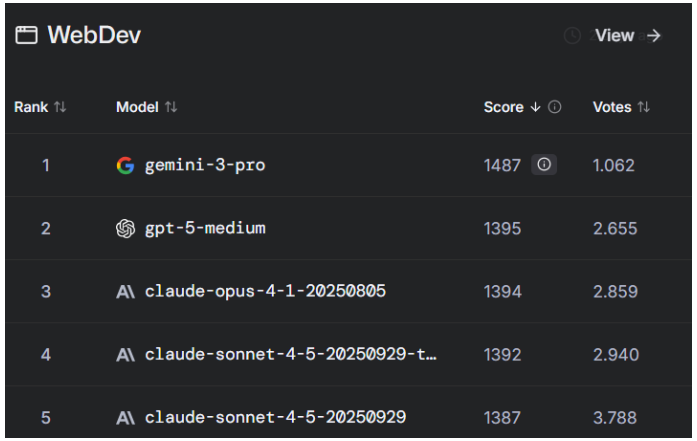
Google Brain founder Andrew Ng thinks everyone should learn programming with 'vibe coding' tools – industry experts say that's probably a bad idea

Vibe coding might be the big industry trend in 2025, but it's not an excuse to skip the fundamentals of development

GHENT UNIVERSITY

A variety of models

- Some vibe coding tools allow the selection of your preferred large language (genAI) model
- There may be an option to “automatically” select the best one
- Otherwise one can refer to LM Arena (Overview Leaderboard | LMArena), which ranked many models for different tasks.



WebDev — View →

Rank	Model	Score	Votes
1	gemini-3-pro	1487	1.062
2	gpt-5-medium	1395	2.655
3	claude-opus-4-1-20250805	1394	2.859
4	claude-sonnet-4-5-20250929-t…	1392	2.940
5	claude-sonnet-4-5-20250929	1387	3.788

Model 269 / 269	Overall	Hard Prompts	Coding	Math	Creative Writing	Instruction Following	Longer Query	Multi-Turn
gemini-3-pro	1	1	1	1	1	1	1	1
grok-4.1-thinking	1	2	1	1	1	1	4	1
grok-4.1	2	2	1	2	2	4	4	1
claude-sonnet-4-5-2…	3	2	1	1	2	1	1	1
gemini-2.5-pro	3	5	9	1	2	4	4	3
claude-opus-4-1-202…	4	2	1	1	2	2	1	1
claude-sonnet-4-5-2…	4	2	3	3	2	2	2	1
gpt-4.5-preview-202…	4	11	10	7	2	5	7	1

GHENT UNIVERSITY

How can vibe coding benefit us?

A few examples for higher education and research.

Teaching

- Exam-specific grading **helper tools** for digital evaluation documents
- Non-programmers can easily make **stunning interactive visuals/simulations** for certain phenomena
- **“Smart” group generators** that take a teacher’s preferences and constraints into account
- Bulk certificate/feedback generators

Research

- Writing aid tools: US/UK English checker, grammar checking apps, …
- Making easy-to-use software for data-analytical and visualization tools => promotes dissemination
- Low-stakes prototyping and experimenting with unfamiliar data analysis methods **with caution**

Learning

- Create **fun gamified webapps** to master specific concepts (e.g., effective for language learning)
- Learn programming through LLM observation

GHENT UNIVERSITY

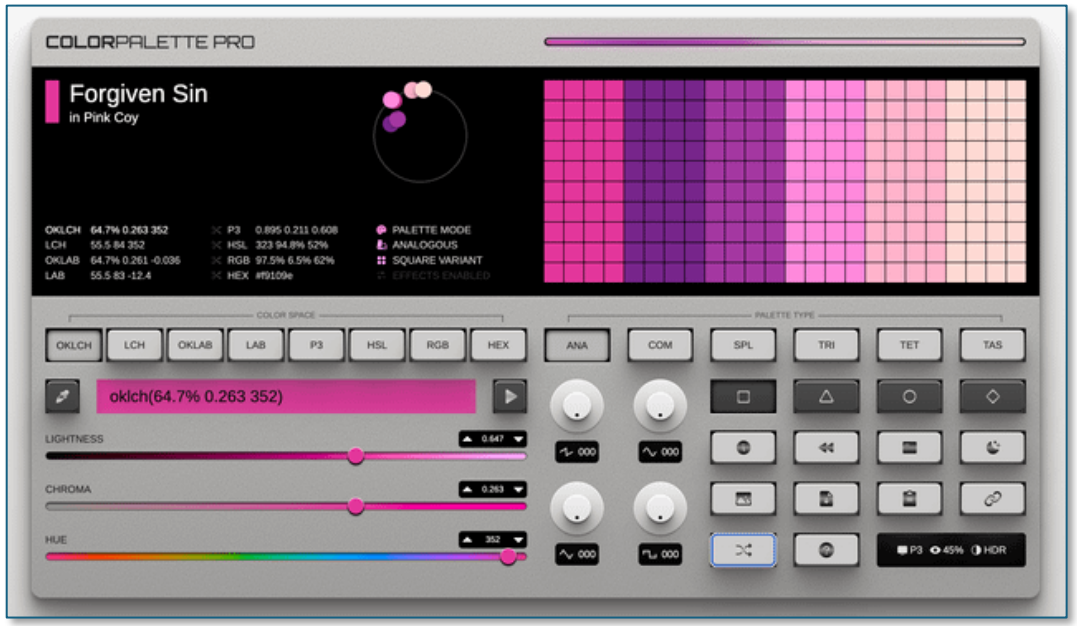
Advanced tips & tricks

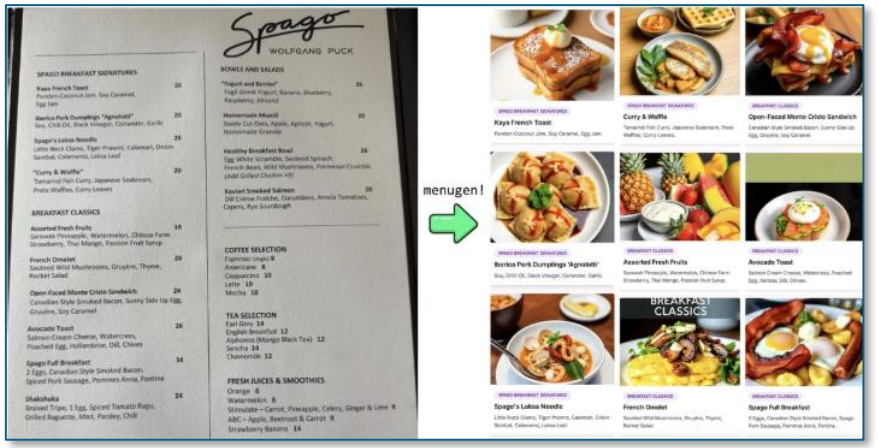
A limited selection of guidelines. More comprehensive guides online.

- Make a detailed **Product Requirements Document (PRD)** describing exactly what you want your application to do, and which frameworks/programming languages should be used. this can be done with the help of ChatGPT
- **Version control** is key to avoid loss of progress! Learn how to use Git and Github.
- Some tools allow the inclusion of **rules** to promote best coding practices (e.g., Avoid monolithic files: modularization)!
- Use **screenshots** and browser **console information** for debugging.
- **Start simple** and provide as much clear **context** as possible while iterating
- While vibe coding works without any knowledge, any **knowledge** , even just familiarizing yourself with the function of the different filetypes (.html, .js, , .css,.py, ...) helps!
- Use **ChatGPT** (or an equivalent) as a “consultant” as you make decisions
- **Switch up the model** when stuck in an error loop.
- Start from existing **templates** available online whenever possible

Examples from the online community

Find many example projects at https://vibecodinglist.com/





GHENT UNIVERSITY

Conclusion

- Vibe coding can be **a useful and fun tool** for use in higher education
- users must remain aware and cautious about its limitations (sustainability, safety, correctness, …) , and **stay critical** about any output

Contact

Maxime.VanHaeverbeke@UGent.be

GHENT UNIVERSITY