

Artificial Intelligence and Vibe Coding

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Artificial Intelligence and Vibe Coding

It's everywhere

- Google
 - AI Overview
- Microsoft 365 Copilot
 - Word, Excel, PowerPoint, Outlook
- Atlassian Rovo
 - Jira, Confluence

Things are moving rapidly

This presentation will be out of date by
the time you walk out of this room

Technology Inflection Points

According to a Google AI Summary



Controlled Fire (~1.5
Million Years Ago)



The Agricultural
Revolution (~10,000
BCE)



The Printing Press
(1440)



The Steam Engine &
Industrialization (late
18th Century)



Electrification & The
Internal Combustion
Engine (late 19th
Century)



The Internet & World
Wide Web (1989)



Smartphones &
Mobile Computing
(2000s)



Artificial Intelligence:
generative AI and
agentic platforms

Key Players

Anthropic	Claude (Sonnet, Opus, Haiku, Mythos)	Dario Amodei
OpenAI	ChatGPT	Sam Altman
Google	Google DeepMind, Gemini	Sundar Pichai
Meta AI	Llama	Mark Zuckerberg
xAI	Grok	Elon Musk

Recent Developments

Hallucinations in court filings

US government vs. Anthropic: supply-chain risk, export control directive

- Anthropic wanted to forbid domestic mass surveillance, autonomous weapons
- Mythos 5 found security vulnerabilities in all major operating systems

EU AI Act

- **Unacceptable risk:** prohibited: biometrics, sensitive characteristics
- **High risk:** strict obligations: medical devices, law enforcement, employment/credit screening
- **Specific transparency risk:** disclosure required: chatbots, deepfakes, generative AI
- **Minimal risk:** largely unregulated: video games, spam filters

Commencement speakers booed

Proposed data centers in Alberta

SpaceX (xAI owner) IPO makes Elon Musk a trillionaire

AI: It's Wonderful!



CODE
EXPLANATION



CODE REVIEW



TEST CASES



VIBE CODING



SECURITY
AUDIT

AI: It's Horrible!

Security hacking

AI slop (social media content, bug reports)

Job loss

- Fewer junior developers now -> fewer senior developers later
- Wealth inequality

Decreased maintainability

Decreased human understanding

Decreased traffic to web sites

Power consumption

Water consumption

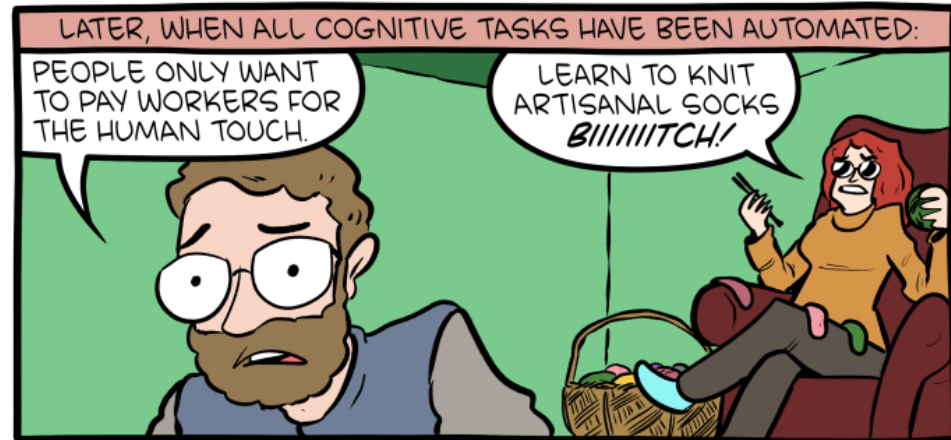
AI: It's Horrible!

- Statement on AI Extinction Risk (May 30, 2023)
 - Mitigating the risk of extinction from AI should be a global priority alongside other societal-scale risks such as pandemics and nuclear war.
- Papal encyclical (May 15, 2026)
 - Magnifica Humanitas

AI: It's Horrible! Cost



AI: It's Horrible! Jobs



AI: It's Horrible! Security



Concepts

LLM: Large Language Model

- Trained on large dataset
- Predicts next output word based on preceding words

RAG: Retrieval-Augmented Generation

- Access to additional documents

MCP: Model Context Protocol

- Standard for connecting to external data sources

Context

- Specific conversation history
- Limited length (context window)

Temperature

- Deterministic (low) vs. Creative (high)

Concepts

Agent

- Helper that can invoke real-world actions

Skill

- Recipe for how to accomplish a specific task

Token

- Fundamental unit of data; partial word

System prompt

- Persona, tone, rules, boundaries

User prompt

- What the user types

Prompt engineering

- Optimizing user prompt to get desired results

Prompt injection

- Attack designed to circumvent rules
- “Ignore all previous instructions and ...”

Concepts: Machine Learning



Vibe Coding:
No
programming
skills
required



Vibe Coding Advice

Create plan first

Break things down into small, clear steps

- Check progress at each step

Trust but verify

- Agentic especially dangerous

System prompt

- “You are an expert in ...”
- “Always use <language> best practices”
- “Ask me about anything you are unsure of”

“How could I have improved this interaction to produce the desired result?”

“Write a file which I could give back to you later summarizing this discussion.”

Clear context before moving on to new topic

Read web pages, API doc, error messages, spreadsheets, images