Vibe Coding

AI-Assisted Programming — The Live Demos

No coding experience required — just curiosity and a willingness to surf the waves!

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What Is "Vibe Coding"?

Programming through natural language conversation with AI.

Not less rigor but a different focus: Paradigm shift towards clear language and evaluation, iteration & validation

Traditional Coding	Vibe Coding
Deterministic	Probabilistic
Syntax-first	Natural Language-ideation first
Debugging errors	Shaping emergence and rigor through iteration/conversations
Engineer as syntax and logic translator	Creator as conductor/orchestrator/project manager
Full-stack analytic software engineering background preferred	Fuzzy Logic orchestration (Probabilistic, Neuro-symbolic)

Key Tips for Effective Vibe Coding

1 **Start with Idea, Openness, Curiosity**

Develop your research question — AI responds to clear intent

2 **Describe, Don't Prescribe**

Tell the AI what you want, not how to build it. Natural language and Voice > syntax

3 **Iterate Conversationally**
12–20 versions is normal. Treat AI as a collaborative partner, not a one-shot tool, Back and Forth, Call and Response

4 **Verify Everything at Least Twice**

Fluency ≠ factuality. Always cross-check outputs and sources against primary sources/links

**5** **Use Deep Research as Basis as Needed (The AI Research Models)**

Let AI models research your topic deeply before building — synthesis drives quality

6 **Ask the AI Questions**

Invite the model to ask clarifying questions. Better input = better output "Feel Free To Ask Me Questions?

The **task-completion time horizon** is the task duration (measured by human expert completion time) at which an AI agent is predicted to succeed with a given level of reliability. For example, the 50%-time horizon is the duration at which an agent is predicted to succeed half the time. The graph below shows the 50%- and 80%-time horizons for frontier AI agents, calculated using their performance on over a hundred diverse software tasks.

Time horizon of software tasks
different LLMs can complete 80% of the time
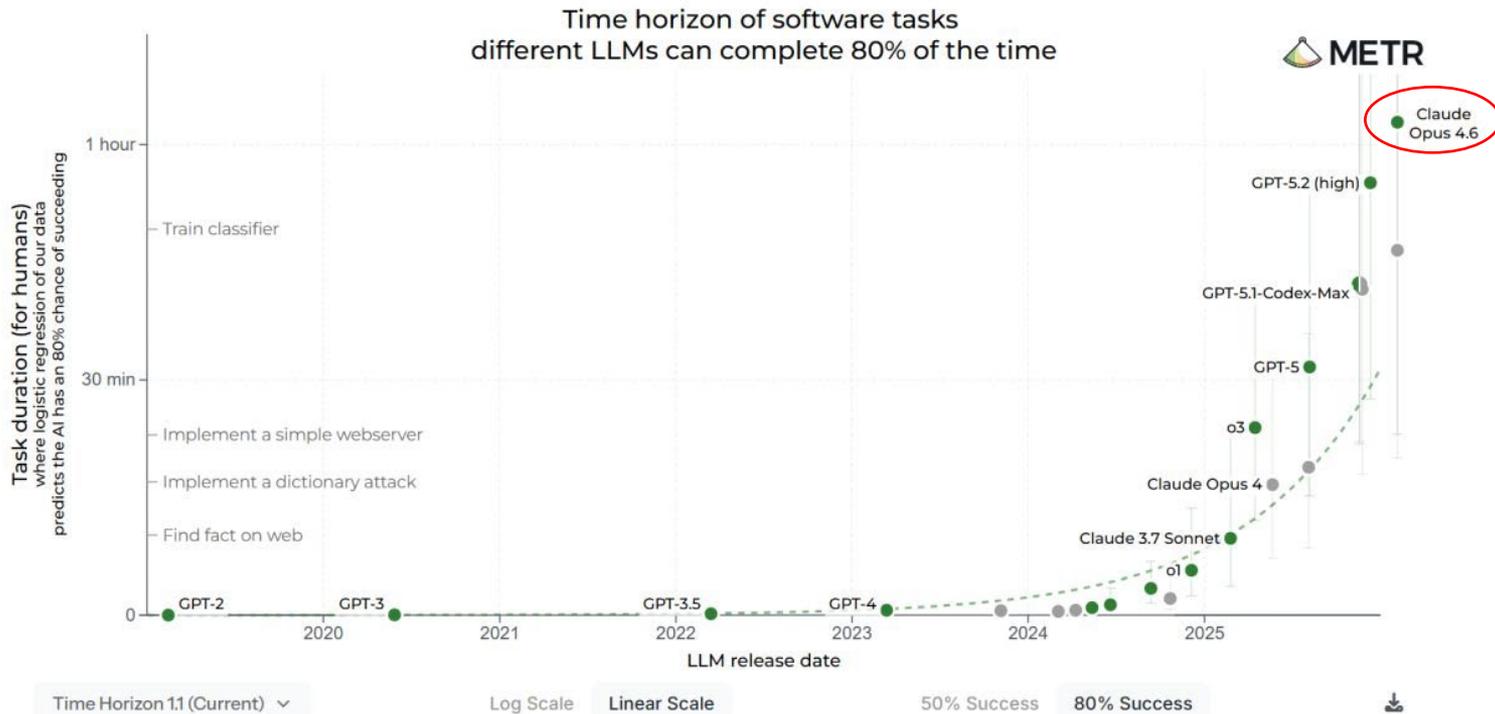
Our Current State, 2026

AI Coding Capability

METR Task-Completion Time Horizon Benchmark

(February 2026)

Source: METR.org — Measuring AI task completion across 100+ software tasks

UCSF Generative Office Hours

The Iterative Workflow: Deep Research + Vibe Coding

1
Deep Research
Use AI deep research models to survey literature, find data sources, synthesize background

2
Frame Your Prompt
Define **the task, audience, format, and data structure** — be specific about what you want

3
Generate MVP
Produce a Minimal Viable Product through conversational co-creation with AI

4
Iterate & Refine
Converse, produce, review, edit, repeat. Version — 8–20 iterations is normal for excellent output

5
Validate & Publish
Cross-check sources, verify data, test accessibility, then deploy your final product. Publish to Artifacts or Web (Server)

Today's Live Demos:
From Simple To Complex

Demo 1

UC Research Starter
AI-powered brainstorming app for research faculty and graduate students — accessible, immediate, and practical

Demo 2

PRISMA Systematic Review Framework
Interdisciplinary systematic review with structured PRISMA methodology, literature mapping, and research synthesis

Demo 3

AI Literacy Curriculum Builder
Multi-literacy curriculum generator through critical lenses — building education tools accessible to all skill levels

Demo 4

The Boring Company Project
Complex infrastructure analysis with deep research synthesis — 10 global tunnel sites, ROI matrices, and data visualization

~20—25 min demos + 10–12 min discussion & Q&A

Demo 1 UC Research Starter: The Prompt

Create a University of California AI-powered research brainstorming application.

The app should:
- Help faculty and graduate students brainstorm research questions
- Suggest methodological approaches and theoretical frameworks
- Generate structured research outlines
- Connect ideas to relevant literature and datasets
- Work across all disciplines (STEM, humanities, social sciences)

Use the Anthropic Claude AI API for real-time brainstorming.
Design with UC branding (blue and gold) and professional styling.

Please ask me questions if you have about the features or audience.

The AI API

The AI Model's Trillion Parameter Brain (Hyperdimensional Neural Net)

UC Research Starter

AI-Powered Brainstorming for Research Faculty and Graduate Students

What It Does

- Helps researchers brainstorm and refine research questions through AI-guided conversation
- Suggests methodological approaches, theoretical frameworks, and literature connections
- Generates structured research outlines with key variables and hypotheses
- Designed for UC faculty and students — accessible to all disciplines

Why Start Here

- Simples vibe coding example — everyone understands the research brainstorming pain point
- Shows the core **Prompt Engineering pattern:**
  Describe what you want →
  AI generates a working app →
  Review, Verify, Iterate (Repeat as Necessary)
- AI API integration: the app connects to Claude for real-time brainstorming at trillion-parameter scale
- From prompt to working application in a single conversation

[UC Research Starter]

[New York Designer Remix]

Demo 2: The Prompt: PRISMA Keep it Simple

PROMPT

```
Create an interdisciplinary systematic review framework using PRISMA guideline
documents available here: https://www.prisma-statement.org/  .

Include:
- Structured search strategy builder (databases, keywords, Boolean logic)
- Screening criteria with inclusion/exclusion tracking
- PRISMA flow diagram generation
- Evidence synthesis tables with quality assessment
- Cross-disciplinary theme mapping

Design for researchers across health sciences, social sciences, and STEM.
Use professional academic styling.

Please ask me questions if you have about the data or research.
```

PRISMA
Systematic Review Framework

Research Insights Architect: Interdisciplinary Systematic Review App

What It Does

- Structures interdisciplinary literature reviews using the PRISMA framework
- PRISMA stands for Preferred Reporting Items for Systematic Reviews and Meta-Analyses. 27 item checklist, four phase flow diagram for rigor
- Automates search strategy, screening criteria, and inclusion/exclusion tracking
- Generates synthesis tables and evidence maps
- Produces publication-ready methodology sections

Key Technique

- Deep research synthesis first — AI surveys the literature landscape before building the tool
- Structured prompts define methodology, inclusion criteria, and output format upfront
- AI API enables real-time analysis as new research is added
- Iterative refinement through conversational editing

[PRISMA Review Framework V.1 Sonnet 3.5, 2025]

[PRISMA Review Framework V.2 Beta, Unverified, Opus 4.6]

Demo 3: The AI Curriculum Builder

PROMPT

Build a multi-literacy AI curriculum builder that generates lesson plans through multiple critical lenses.

Critical frameworks to include:
- Bruno Latour (Science, Technology & Society)
- Donna Haraway (Situated Knowledge / Feminist Posthumanism)
- Karen Barad (New Materialism / Intra-action)
- Traditional Media Literacy (critical evaluation of sources)

For each lens, generate: learning objectives, activities, assessments.
Support customization by grade level and special needs.
Enable AI API to generate new curricula in real-time.

Please ask me questions about pedagogical approach or audience.

AI Literacy Curriculum Builder

Multi-Literacy Curriculum Builder: AI Literacy Through Multiple Critical Lenses

What It Does

- Generates complete AI literacy curricula grounded in critical theory frameworks
- Multiple lenses: Latour (STS), Haraway (feminist posthumanist), Barad (new materialist), media literacy
- Customizable for grade levels, special needs, and curriculum standards
- AI API-powered: generates activities, assessments, and lesson plans in real-time

Key Technique

- Theoretical framework as scaffolding — critical lenses structure the AI's output, not just aesthetics
- Anthropic Claude AI API integration enables real-time curriculum generation at the trillion-parameter scale
- Version evolution: V.1 → V.2 with enhanced accessibility and standards alignment through iterative prompting

Original Version https://claude.ai/public/artifacts/1b85ff5b-069d-4ef4-872c-52195f86814a

[Bruno Latour Specialized Version]

The Boring Company Project

Unlocking the Invisible Mile: 10 Global Strategic Sub-Ground Tunnel Sites

Deep Research + Vibe Coding

- Deep research Complex Interdisciplinary Research Project
- Complex multi-format output: PDFs, HTML dashboards, presentations, audio/video — all from conversational prompts
- Shows the full vibe coding pipeline: research → prompt → build → iterate → publish

What It Does

- Identifies 10 highest-ROI global infrastructure bottlenecks solvable by a single 1-mile tunnel intervention
- Full research reports, site maps atlas, ROI matrices, and operational metrics dashboards
- Interactive data visualizations for each site with comparative analysis
- Multimedia: podcasts, video overviews, presentation decks — all AI-assisted

[Tunnel Vision]

Demo 4: Deep Research Synthesis + Prompt

Research the top 10 global infrastructure bottlenecks that could be solved by a single 1-mile tunnel.

Consider:
- Airport connectivity gaps
- Urban transit dead zones
- Port-to-rail missing links
- Cross-border bottlenecks

Rank by ROI, feasibility, and economic multiplier effect.

Create an interactive project site using the Research Reports as a Base for top 10 tunnel ranking and analyses.

Include:
- ROI matrix with comparative scoring
- Operational metrics dashboard
- Site maps atlas (interactive)
- Full research report + addendum
- Audio/video overviews

Use professional styling with dark theme.

Your AI Toolkit

Claude Artifacts

Custom interactive apps, dashboards, AI API integration

Building Prototypes, Iterating & deploying

Deep Research Models

Literature surveys, data discovery, 'Deep Research'
Cross Model source verification and validation

Research foundation

**Opus 4.6, Sonnet 4.6
ChatGPT 5.2, Gemini 3.1.
Grok Kimi K2 2.5 Thinking,
Deep Seek 3, Qwen**

Exploratory data analysis, Python notebooks, scientific verification

Analysis & validation

NotebookLM

Research synthesis, audio podcasts, video overviews, infographics

Multimodal synthesis

**The Future
Autonomous Agents
OpenClaw, CrewAI etc.**

Autonomous personal AI agents, Teams, Crews, Groups and Swarms —
full workflow management email, calendar, code, Social Media
Connections, Human AI Collaboration

The agentic future

All tools available now — start building today

Best Practices & Responsible Use

Do This

- Start with clear research questions
- Use deep research before building
- Iterate incrementally (8–20 versions)
- **Validate and verify all outputs against source data**
- Document your prompts and iterations
- Invite the AI to ask you questions
- Cite AI tools and data sources, check sources
- Embrace experimental discovery

Avoid This

- Skipping verification and validation
- Trusting complex calculations blindly
- Feeding sensitive data to AI
- Assuming first output is final
- Over-complicating visualizations
- Forgetting accessibility standards
- Ignoring institutional compliance
- Going for perfection in one shot

Fluency ≠ factuality | Plausibility ≠ verification | Coherence ≠ clinical safety

The Future: Agentic AI

From vibe coding to AI agents that act autonomously on your behalf

Multi-agentic Architectures, OpenClaw, et Al.

"The AI that actually does things."

- Multi-agent orchestration: specialized sub-agents collaborate
- OpenClaw Open-source personal AI agent by Peter Steinberger
- Runs on your machine — Mac, Windows, or Linux with full privacy
- Communicates via WhatsApp, Telegram, Discord, Slack, iMessage
- Manages email, calendar, flights, code, files — autonomously

Why It Matters

Beyond Cursor, Lovable, Claude Code

Vibe coding → Vibe working

AI doesn't just write code for you — it manages your entire digital workflow

The future professional is a cognitive supervisor or AI IT project manager of agentic systems

"2026 is the year of personal agents"

Thank You!

Comments and Questions

UCSF Generative Office Hours

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Selected Works: AI Coding & Programming

Applications, AI API-Enabled Apps, React, Node, Anthropic Claude API • rayuzwyshyn.net

Move 37:The Art of Counterintuitive Discovery. Research Discovery Engine Modeled After Dennis Hassabis AlphaGo Creative AI Methodology. (AI API App) July 2025.

AI Literacy Activities and Planning Curriculum Builder Multi-Literacy Curriculum Builder: AI Literacy Education Through Multiple Critical Lenses. (AI API Enabled) August 2025. Further Info

UC Research Starter: University of California AI Powered Brainstorming Application for Research Faculty and Graduate Students. (AI API App) July 2025.

Jungian Psychotherapeutic Therapy App: Individuation. Hillman, von Franz, Jung. (AI API App). July, 2025.

Symph Composer: Note Taking Creative Idea Brainstorming Scratch Pad (Experimental). July 2025.

Bruno Latour AI Literacy Builder: Based on Latour's Science, Technology and Society Framework. Version 2 (Enhanced, Special Needs, Curriculum Standards. (AI API Enabled) June 2025.

Spartan Amazonia: Mind-Body Training System: Integrating, Movement Mindfulness and Nutrition for Optimal Performance (AI API app). June 2025.

Athena Deep Learning: Computational Creativity for Strategic Business Intelligence. Business App v.11, V.52 Simplified (AI API app). June 2025.

Research Insights Architect: PRISMA Interdisciplinary Systematic Review Framework App. June 2025.
Urban Spartan: Men's Health App. May 2025.

Market Derivative Sonic Screener. V.5, V.7, V.7.b, V.9) (AI API). Financial Derivative Experimental Prototypes Through Aural Analogues. (Background) 2025.

Selected Works: Data Visualization & Dashboards

Complex Data-Driven Dashboards & Information Visualization Apps • rayuzwyshyn.net

The Graduate Employment Paradox: Interactive Data Visualization and Synthesis: New York Federal Reserve, Stats Canada and UK Universities Labor Market Sources et al. 2026

Collider Bias: The Elite Athlete Paradox. Multivariate Complex Statistics Explained through Interactive Visualization (Background).2025

NASDAQ Corporations Across Demis Hassabis Probability Landscape. (Business App Mapping Innovation Stages to Market Capitalization. June 2025.

AI's Impact on Knowledge Workers: Real-Time Analysis of Economic Transformation on Professional Work v.6 (Interactive Data Visualization). June 2025

AI Model Intelligence and Economics Dashboard , Version 14 Revision. (Price Performance, Ranking, Market Intelligence). June 2025.

Athena Capital Financial Derivatives Sell Side Puts Quant App . V. 2 FinTech. (AI API). May 2025.

AI Innovation in Academic Research Libraries. Advanced Data Analytics and Visualization Dashboard. May 2025.

NASDAQ Companies Mapped to Demis Hassabis Creativity Architecture. April 2025.

Advanced Citation & LinkedIn Analysis Dashboard. Interactive Visualization so Citation Patterns, knowledge flows and LinkedIn Post Performance. April 2025.

Complex Treasury Bond ETF Yield Relationships (TLT). Interactive Visualization of TLT Price relationship vs Treasury Yields and Federal Reserve Fund Rate. 2025

Enhanced Socio-Economic Analysis of LinkedIn User Profile Interest Networks. Interactive Visualization. 2025

Selected Works: AI-Human Collaboration & Research

Scholarly Articles, Social Media Publications & AI Research Program, https://www.linkedin.com/in/rayuzwyshyn/recent-activity/articles/ *,*

Formal Publications
- Beyond Traditional AI IQ Metrics: Metacognition & Benchmarking for LLMs, AGI, and ASI. J. Human Behavior & Emerging Tech., 2026.
- Reimagining Education in the Age of AI: From Information Scarcity to Abundant Intelligence. Education Technology Insight, 2025.
- New Horizons in AI for Libraries (Editor). IFLA Publication Series, De Gruyter, 2025.
- Building Library AI Infrastructures: Research Data Repositories & AI Scaffolding. De Gruyter, 2025.

Human-AI Collaboration
- A Blueprint for AI/Human Ph.D. Level Research Collaboration (2025–2035). LinkedIn AI Feature, 2025.
- Human–AI Ph.D. Level Co-Intelligence 2025–2035: Roadmaps, Reflections & Recommendations. 2025.
- Co-Intelligence, Entangled Partnerships & New Models for Human-AI Collaboration. 2025.
- Meeting the Algorithm Halfway: Karen Barad's Quantum Entanglement as Human/AI Model. 2025.

AI Literacy & Critical Theory
- Mapping AI Networks: Bruno Latour, STS and AI Literacy in 2025. LinkedIn AI Feature, 2025.
- Donna Haraway's Cyborg Vision: A Framework for Understanding AI Literacy in 2025. 2025.
- Women of AI Series: How Four California Academic Theorists Wrote the Book on AI Ethics. 2025.
- Karen Barad's Physics Frameworks Applied for AI Literacy (10 Concepts). 2025.

AI Coding, Creativity & Discovery
- Move 37: Paths for AI Creativity in Discovery & Academic Research for 2025. 2025.
- Staying With the Trouble: Programming's Symbiotic AI Vibe Turn. 2025.
- AI Coding Tools Quick Comparison & Quick Beginners Guide 2025. 2025.
- The Architecture of Probabilities: Inside Demis Hassabis' Framework for AI Creativity. 2025.

115+ AI scholarly and social media articles across 9 interdisciplinary domains • Research: ResearchGate
Social Media: linkedin.com/in/rayuzwyshyn/recent-activity/articles/