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Vibe Coding Done Right

AI-Assisted Productivity
with Engineering Discipline

Philipp Bauer
Sr. Software Architect

About Philipp



Sr Software Architect @CODE Consulting

15+ Years of Experience

Certified Media Designer

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CODE30

YEARS



30 years of
"Helping People Build Better Software"

About CODE Consulting



Custom software development
(web, mobile, desktop and cloud platform apps)

Copilot development, AI, GPT, Azure OpenAI,
machine learning, and more...

Project rescue (cloud, web, mobile, Windows, ...)

App modernization (primarily Visual FoxPro)

Support & maintenance for existing applications

AI Consulting Services



Check out our new Executive Briefing offer!

We can help with your AI needs

What does AI mean for you?

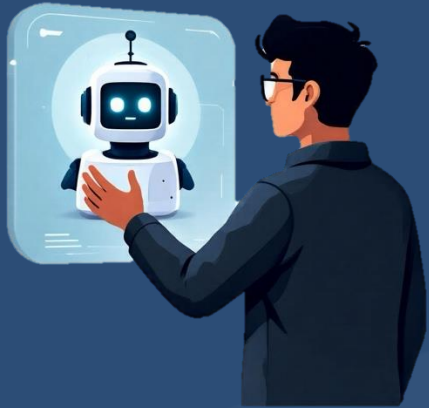
“Skunk Works” Projects

codemag.com/AI

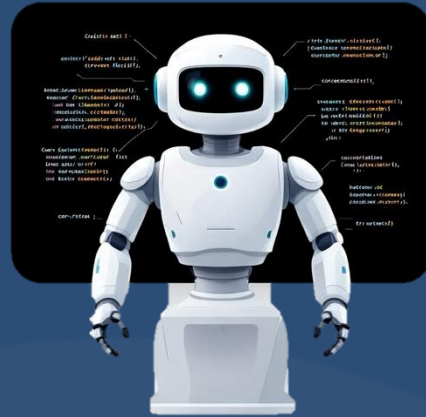
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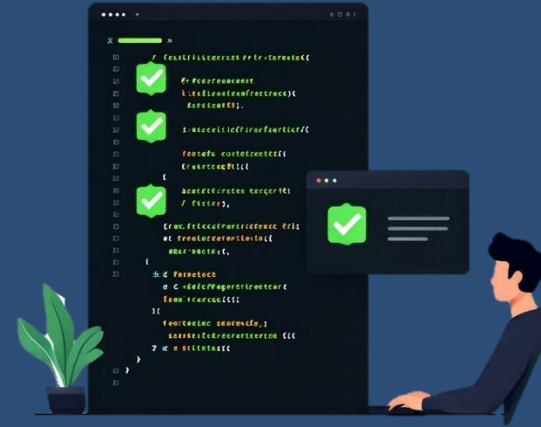
Imagine It's May 2027...



New developer
instructs AI to
implement feature
without researching
docs or codebase



AI builds new feature
in 30 minutes and
creates a new
pull request



Tech-Lead reviews the
PR and finds a fully
working feature
implementation using
best practices



Developer struggles
to explain
implementation.
“Does it matter? It
works, right?”

What's your gut reaction to AI coding tools?

Excited

They'll make me
more productive

Concerned

They'll erode
essential skills

Agenda



- Introduction to "Vibe Coding"
- The Appeal and Dangers of Vibe Coding
- The Evolution of AI Coding Tools
- Responsible AI-Assisted Development
- The New Software Engineering Skillset
- Live Demonstration
- The Future Landscape
- Open Discussion and Q&A

Vibe Coding: Defined

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Andrej Karpathy 
@karpathy

There's a new kind of coding I call "vibe coding", where you fully give in to the vibes, embrace exponentials, and forget that the code even exists. It's possible because the LLMs (e.g. Cursor Composer w Sonnet) are getting too good. Also I just talk to Composer with SuperWhisper so I barely even touch the keyboard. I ask for the dumbest things like "decrease the padding on the sidebar by half" because I'm too lazy to find it. I "Accept All" always, I don't read the diffs anymore.

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AI in Coding: The Current State



- Major tech companies reporting significant productivity gains
- Democratizing software development for non-programmers
- Accelerating developer workflows across industries

AI is Coming for Our Jobs... or is it?



The Disruption

- Dramatic reduction in development time
- Democratization of software development
- Growing percentage of AI-generated code

The Reality

- We're still in early stages
- Success requires new skills
- Developer roles transforming, not disappearing

The Appeal and Dangers of Vibe Coding



The Productivity Promise



Personal Experience

- Hours vs. week of development time
- Feature implemented with minimal intervention
- Complete with UI and working algorithms

Benefits

- Accelerated prototyping: hours not days
- Reduced development costs
- Enhanced accessibility for non-programmers

The Hidden Costs



Maintenance Nightmares

"I couldn't just paste the error into an AI and pray. I had to understand the underlying payment management logic." - Namyay

Technical Debt Accumulation

"Sometimes the LLMs can't fix a bug so I just work around it or ask for random changes until it goes away." - Andrej Karpathy

Loss of Intellectual Ownership

"The real problem isn't just about maintaining the intellectual ownership of our systems." - Namyay

When to Vibe, When to Think



Works Well For

- Throwaway weekend projects
- Personal utility apps
- Rapid prototyping
- Proof-of-concepts
- Internal non-critical tools
- Translating languages

Problematic For

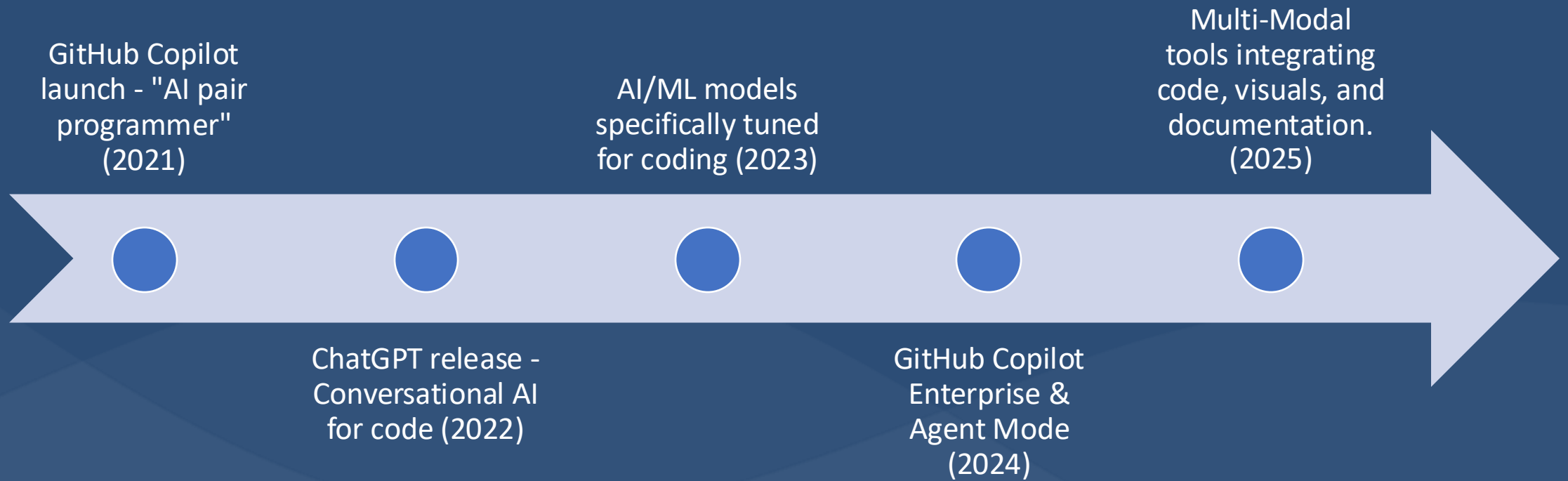
- Long-term maintained systems
- Mission-critical applications
- Security-sensitive code
- Regulated environments

The Evolution of AI Coding Tools



Evolution of AI Coding Tools

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Current Capabilities and Limitations



Current Strengths

- Generating boilerplate code and standard patterns
- Converting between programming languages
- Debugging common errors
- Writing tests for existing code
- Explaining unfamiliar code
- Implementing well-defined features

Persistent Limitations

- Understanding complex business domain logic
- Making nuanced architectural decisions
- Ensuring security in critical applications
- Optimizing for performance at scale
- Maintaining consistency across large codebases

Model Context Protocol (MCP)



MCP Overview

- Open standard introduced in November 2024
- "USB-C for AI integrations"
- Enables secure, two-way connections between AI models and external services

Key Capabilities

- Standardized communication format across services
- AI can autonomously discover and sequence tools
- Real-time documentation and Stack Overflow lookups
- Project structure analysis and dependency checks
- Direct database queries from the editor

Responsible AI-Assisted Development



Maintaining Intellectual Ownership



Definition

- Having a mental model of your entire system
- Understanding component interactions
- Knowing why specific approaches were chosen
- Ability to reason about the system as a whole

Warning Signs

- Can't explain features without looking at code
- Making random changes to fix bugs
- Avoiding parts of your codebase out of fear
- Dependence on AI for minor changes

Process-Oriented Quality Control



Before AI Generation

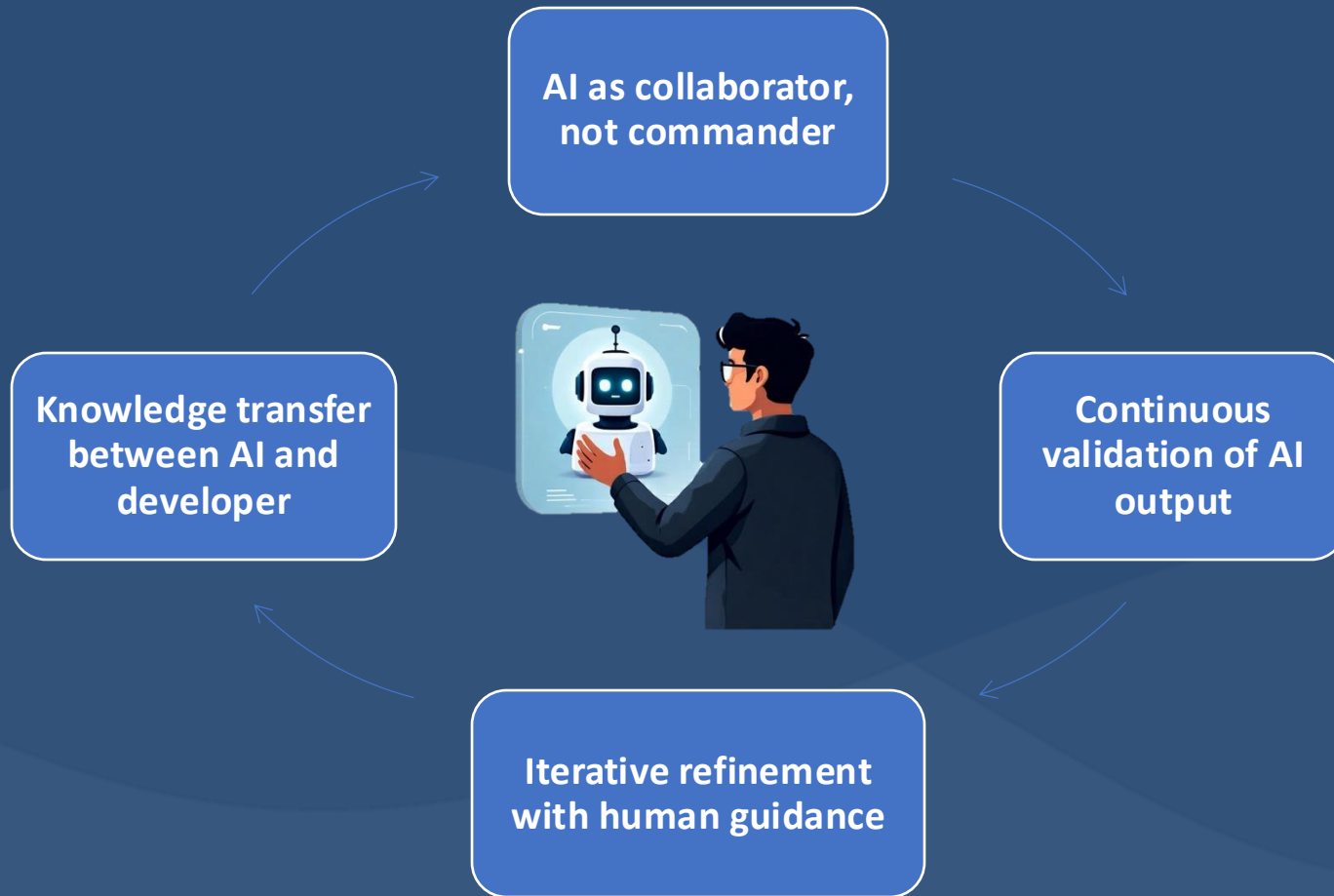
1. Define expected behavior (e. g. write tests first)
2. Establish architectural boundaries
3. Generate in small, manageable chunks

After AI Generation

1. Rigorous code review (read every line)
2. Comprehensive testing
3. Version control discipline

The Human-in-the-Loop Approach

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The New Software Engineering Skillset

The image features two graduates in blue caps and gowns shaking hands. The graduate on the left is a woman with a digital, wireframe overlay on her face and neck, showing a circular sensor or eye-like structure. The graduate on the right is a man with a similar digital overlay on his face, showing a network of lines and nodes. The background is dark with bokeh light effects and faint geometric shapes like hexagons.

From Writing Code to Prompt Engineering



The Declining Focus

- Raw coding ability
- Memorizing syntax
- Writing boilerplate
- Debugging standard patterns

The Rising Skills

- Clear, detailed specifications
- Understanding AI model limitations
- Providing context and constraints
- Prompt refinement techniques

Higher-Level Focus in the AI Era



System Architecture & Design

- Component boundaries and interactions
- Technology selection based on requirements
- Consistency across AI-generated components
- Planning for scalability and security
- MCP Servers and AI information access

Project Organization

- Breaking projects into AI-manageable chunks
- Creating detailed specifications
- Validating AI outputs with testing
- Managing human-AI collaborative teams

Critical Skills for the AI Era



Systems Thinking

- Understanding complex interactions
- Identifying potential failure points
- Designing resilient architectures

Domain Expertise

- Translating business requirements
- Understanding industry constraints
- Validating against domain criteria

Critical Evaluation

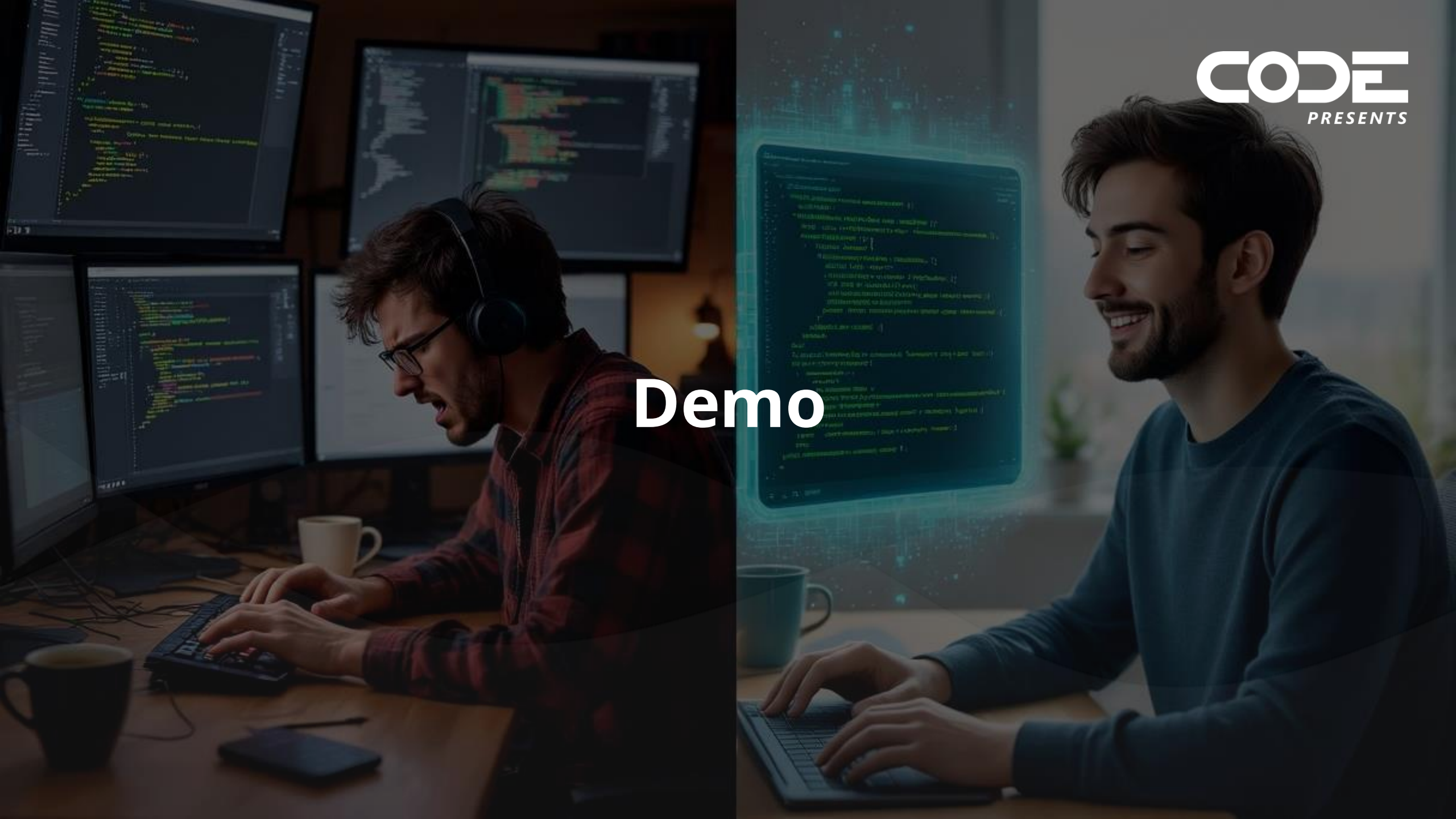
- Assessing AI-generated code quality
- Identifying edge cases
- Recognizing AI competency limits

Human-AI Collaboration

- Effective AI workflow development
- Creating AI feedback loops
- Building collaborative team cultures

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Demo

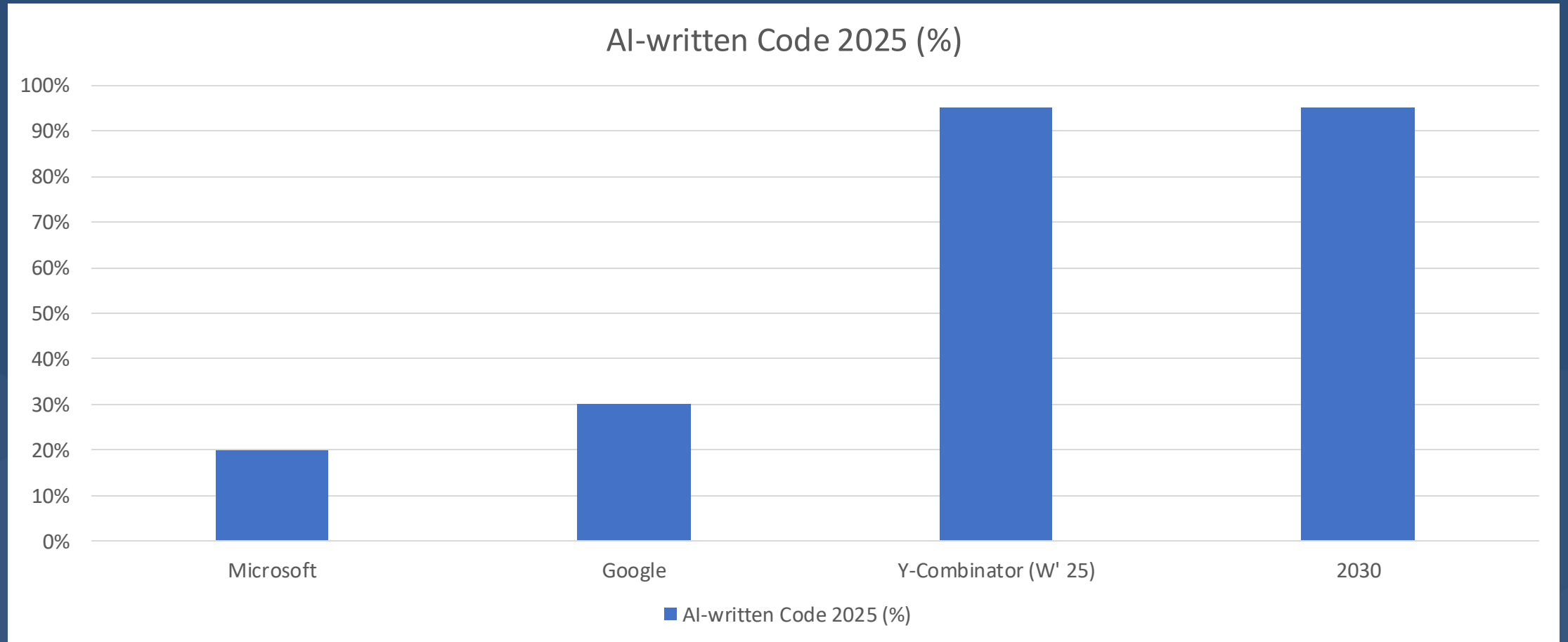




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The Future Landscape

Industry Trajectory to 2030



Career-Oriented Strategies for Success



For Individual Developers

1. **T-shaped Expertise:** Deep domain + broad AI leverage
2. **Uniquely Human Skills:** Creativity, communication, ethics
3. **Strategic Upskilling:** Prompt engineering, AI evaluation
4. **Personal Brand Evolution:** Showcase understanding, not just output

For Organizations

1. **Redefine Development Processes:** AI-aware SDLC
2. **Transform Talent Strategy:** New roles and advancement paths
3. **Invest in AI Governance:** Audit processes and accountability
4. **Build Future-Ready Culture:** Reward quality and ownership

Finding Balance: The Path Forward



Key Uncertainties to Monitor

- **Technical:** Code quality, security vulnerabilities
- **Business:** Role specialization, compensation models
- **Educational:** CS education adaptation

Responsible AI Use Can

- Eliminate repetitive, low-value tasks
- Accelerate exploration and prototyping
- Make development more accessible
- Free mental capacity for higher-order thinking

But Responsibility Requires

- Intellectual ownership of systems
- Understanding what you're deploying
- Human judgment for AI outputs
- Continued fundamental skill development

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AND SURVEY LINK REPEATED IN THE CHAT WINDOW!

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CODE Presents: Prompt Eng
Talk to an AI Survey

The survey will take approximately 4 minutes to complete.

Thank you for attending! Please complete this brief 12 ques
Your survey must be completed by 11:59pm ET (UTC-4) on O
please. Drawing will occur and the individual winner notified

attending! Please complete this brief survey.
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