

Rapid Engineering with AI

Building at the Speed of Thought

AI Fund Engineering Practices

The Paradigm Shift

From "Vibe Coding" to **Rapid Engineering**

Like architects who design buildings, not construct them:

- The effort and cost of coding → 0
- Engineering decisions remain critical

We're not writing less code, we're making more decisions

What is Rapid Engineering?

- **Effort of implementation** approaches zero
- **Engineering judgment** becomes everything
- **System thinking** over syntax knowledge
- **Architecture decisions** over implementation details

Software is becoming more about engineering, less about coding.

The 0-to-1 Journey

AI Fund Venture Studio Reality

Idea → Prototype → First Customer → Enterprise
↓ ↓ ↓ ↓
Hours Days Weeks Months

Optimization objective constantly shifts:

- Speed first - bias to action
- Then plan the path to scaled up deployment
- Without painting yourself into corners

Multi-Axis Optimization

Early Stage: Optimize for speed

Growth Stage: Optimize for stability

Enterprise: Optimize for security & compliance

The New Reality:

- Put objectives in the spec
- AI generates code to match
- Code is disposable artifact
- **Specs become the IP**

Architecture Exploration Advantage

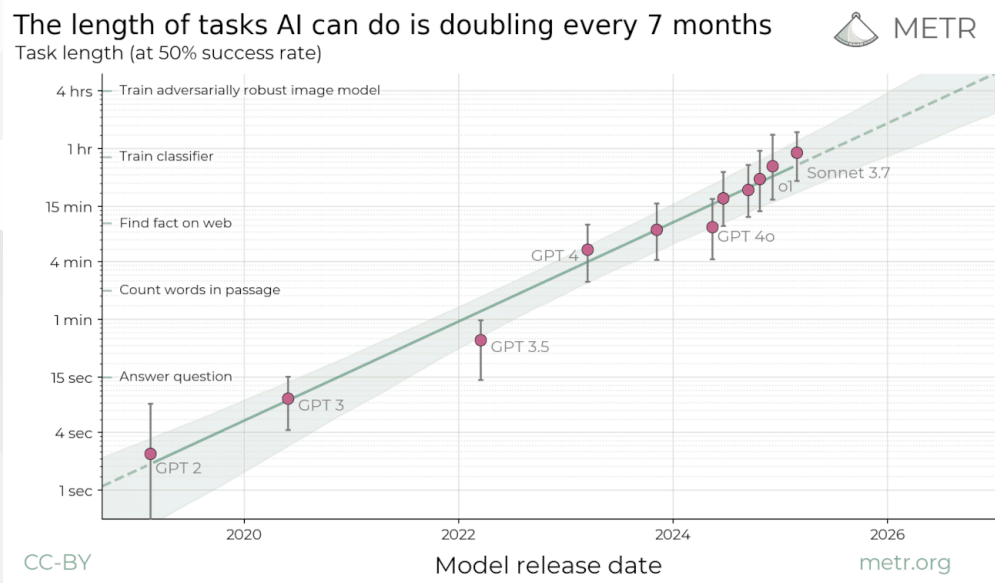
Old World: Stuck with your first architecture forever

Rapid Engineering: Try 3 architectures in a week

Real Examples:

- **APIs:** Stateful API had high latency variance - switched to stateless in hours
- **Databases:** Tested Firebase/NoSQL vs Supabase/SQL side-by-side
- **Providers:** Swapped OpenAI ↔ Gemini implementations

Tasks complexity exploding



- Task complexity increases exponentially
- What was impossible yesterday is routine today

Why Agentic Search > RAG

RAG (Cursor): Retrieves similar code chunks

Agentic (Claude Code): Explores with purpose

Claude Code with Opus 4:

- Searches intelligently across files
- Builds understanding iteratively
- Maintains context between searches
- Adapts strategy based on findings

How to Use Claude Code Effectively

Do:

- **Start with context:** "We're building X using Y"
- **Be specific:** Avoid under-specifying implementation details
- **Think in tasks:** "Find all API endpoints..."
- **Iterate:** Build on previous responses


Claude Code: What to Avoid

Don't:

- Assume it knows your setup
- Accept first output blindly
- Skip testing

Remember: Claude Code is powerful but needs guidance

Example: Effective Claude Code Usage

 **Bad:** "Change the variable name from 'data' to 'userData' in the function"

 **Good:** "Make user data handling consistent with our auth module patterns"

Key: Describe the outcome, not the steps!

Common Pitfalls with AI Coding

1. Not describing the outcome

✗ "Fix the bug in the dashboard"

✓ "Users should see metrics update without page refresh"

2. Assuming limitations

✗ "AI probably can't handle database migrations"

✓ Just tried: Migrated entire app from Firebase to Supabase!

More Pitfalls to Avoid

3. Micromanaging the approach

✗ "First create a useState hook, then..."

✓ "Add user authentication with session management"

4. Accepting without review

Always test edge cases - AI might miss business logic nuances

Engineers as Multipliers

New Engineering Superpowers:

1. **Tool Curation:** Which AI for which task
2. **Pattern Teaching:** Effective prompts & workflows
3. **Quality Gates:** Good vs problematic output
4. **Architecture Guidance:** Avoiding dead ends

One engineer can enable 10x more experiments

For Non-Engineers

Rely on Engineers for:

- **Tool Selection:** Claude vs Copilot vs Cursor
- **Best Practices:** How to prompt effectively
- **Quality Assessment:** Is this production-ready?
- **Architecture Review:** Will this scale?

Engineers aren't gatekeepers, they're enablers

Rapid Engineering Workflow

1. **Define the experiment** (Business)
2. **Architect the approach** (Engineering)
3. **Rapid implementation** (AI + Human)
4. **Validate with users** (Product)
5. **Iterate or pivot** (Team)

Days, not months

Technical Debt: Strategic Choice

Real Progression Example:

1. **Week 1-4:** Manual testing only (faster with few features)
2. **Month 2:** Add deployment automation (manual was slowing down)
3. **Month 3:** Automated test suite (complexity demands it)

Key: Document WHEN to transition, not IF

Rapid Engineering is Full Stack

AI handles all layers:

- Frontend (React, Vue, etc.) ✓
- Backend (APIs, databases) ✓
- Infrastructure (Docker, K8s) ✓
- ML/Data pipelines ✓

Engineers guide: Deployment strategy & architecture

The Future is Already Here

Today's Reality:

- Autonomous debugging ✓
- Architecture generation ✓
- Cross-codebase refactoring ✓
- Continuous optimization ✓

These aren't future promises - use them now!

What Remains Human

AI Can't Replace:

- Business judgment
- User empathy
- System thinking
- Human-in-the-loop design

We guide the tools, not the other way around

Key Takeaways

1. **Rapid Engineering > Vibe Coding**
2. **Speed first, enterprise later** (but plan for it)
3. **Agentic AI changes everything**
4. **Engineers are multipliers**, not bottlenecks
5. **Strategic technical debt** is a superpower

Resources

Tools:

- **Claude Code** (Opus 4) - Agentic coding
- **Cursor** - AI-first IDE
- **Gemini 2.5 Pro** - AI Studio (1M token context window)

Thank You!

Remember:

**We're not automating engineering.
We're engineering at the speed of thought.**

Questions?

Contact: eli@aifund.ai

