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AI STARTUP SCHOOL



Startup Building at Speed with AI

Andrew Ng
AI Fund

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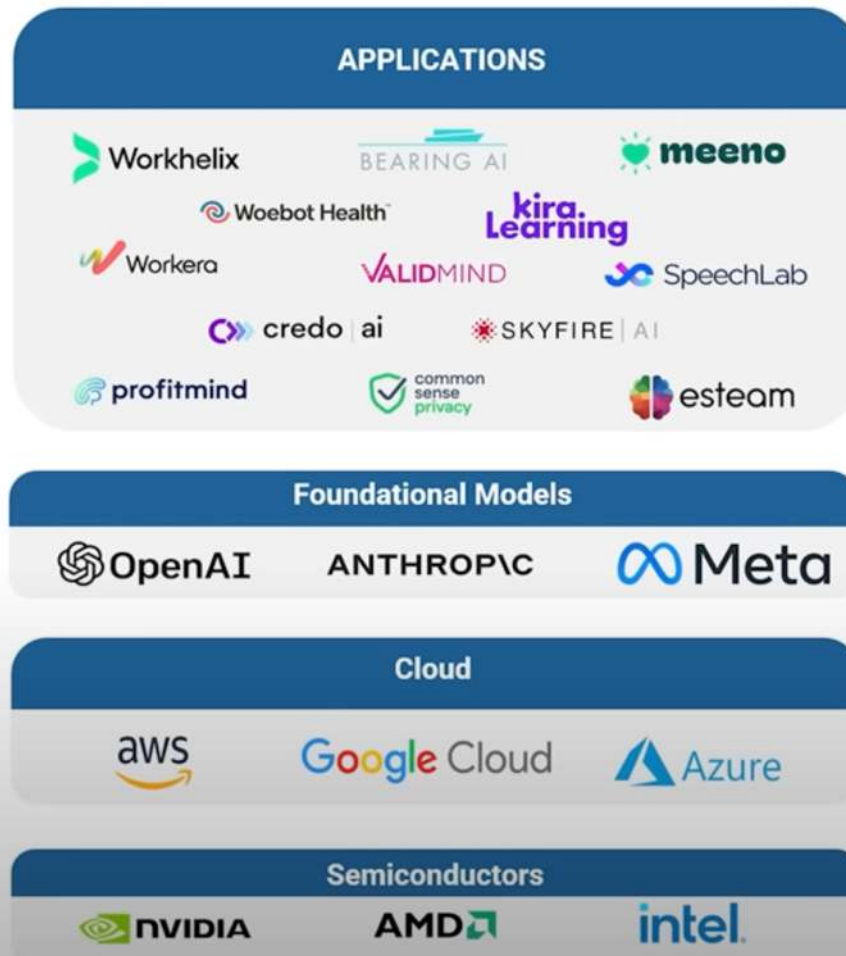
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A strong predictor for a startup's odds of success is its execution **speed**.

AI speeds up startups.

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The AI Stack: Where are the biggest opportunities?

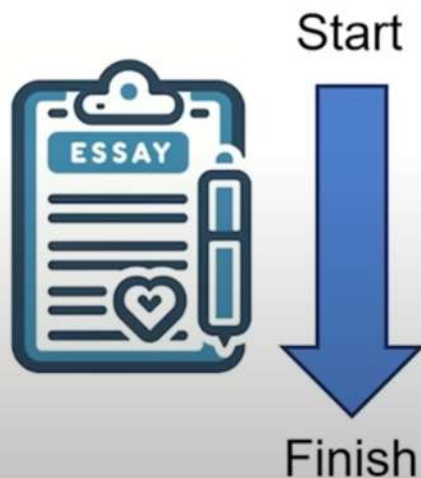


Even though a lot of attention is on AI technology (esp. foundation models) most of the opportunities will be in building AI applications.

Agentic AI

Non-agentic workflow (zero-shot):

Please type out an essay on topic X from start to finish in one go, without using backspace.



Agentic workflow:

Write an essay outline on topic X

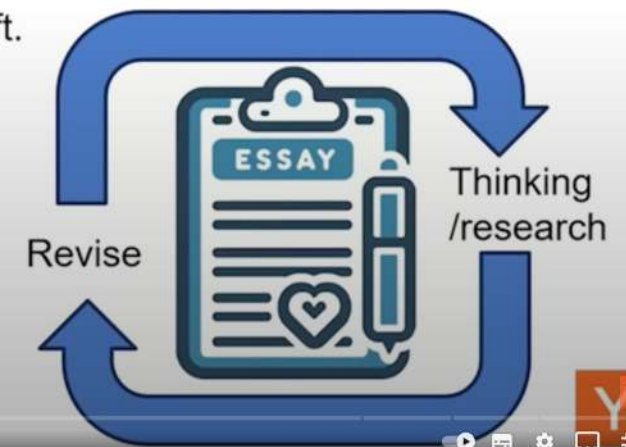
Do you need any web research?

Write a first draft.

Consider what parts need revision or more research.

Revise your draft.

....



The AI Stack: Where are the biggest opportunities?



Even though a lot of attention is on AI technology (esp. foundation models) most of the opportunities will be in building AI applications.

← New agentic orchestration layer

Working on concrete ideas lets you go faster

A concrete product idea is one that's specified in enough detail an engineer can build it.

- Not concrete: AI to optimize healthcare assets
- Concrete: Software for hospitals to let patients book MRI machine slots online to optimize usage
- Not concrete: AI for email personal productivity
- Concrete: Gmail-integrated automation that let user write prompts to automatically filter/tag emails

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Tips for working with concrete ideas

- A concrete idea gives clear direction and can be executed and validated/falsified quickly.
- Good concrete ideas often come from a subject matter expert thinking about a problem for a long time. Their gut can be very good for making decisions.
- If data causes you to lose faith in a concrete idea, it's fine to rapidly pivot to a new direction.

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The build/feedback loop



Rapid Prototyping and Engineering
9:05

9:02 / 43:57 • Rapid Prototyping and Engineering >



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Feedback loop to derisk customer acceptance



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Rapid engineering for prototyping

Build
Prototypes

10x faster!

Write/maintain
production
software

30-50% faster?

To pursue innovation, you can build 20 prototypes to see what works

~~Move fast and break things.~~

Move fast and be responsible.

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Rapid engineering with AI assistance

- Code autocomplete (Github co-pilot)
- AI-enabled IDEs (Cursor, Windsurf)
- Highly agentic coding assistants (Claude Code, Codex)

New philosophies to software engineering:

- Code is no longer as valuable artifact as it used to be
- Even choosing the architecture for a prototype is closer to a 2-way than a 1-way door.

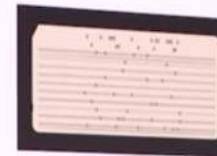
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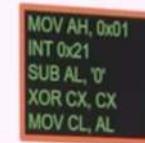


Beyond software engineers: Empowering everyone to build with AI

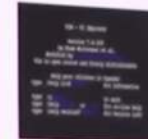
Some are advising people not to learn coding on the grounds AI will automate it. This is bad career advice.



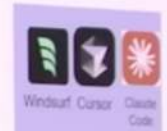
Punch cards
→ Keyboard



Assembly
→ Modern languages



Text editor
→ IDE



AI coding
assistance

As coding becomes easier, people of all job roles should code more!

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Beyond software engineers: Empowering everyone to build with AI



From: Generative AI for Everyone



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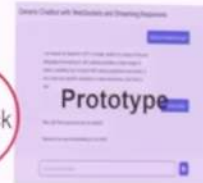


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Feedback loop to derisk customer acceptance

With rapid
engineering,
this becomes
the bottleneck

Get
Feedback
(PM)



Build
Software
(Engineering)

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Where to get product feedback

- Play with the product yourself (10 min)
- Ask 3 friends or teammates (~0.5 days)
- Ask 3-10 strangers (~1 day).
- Send prototype to 100 testers (~1 week)
- Send prototype to 1,000 users to get qualitative or quantitative feedback (~2 weeks).
- Launch full-fledged product, A/B test (2+ months)

Faster,
less accurate



Slower,
more accurate

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The importance of technical understanding

- When it comes to mature technology, most people have good instincts about what it can do. E.g., mobile app
- For mature job roles (sales, marketing, HR, legal, etc.) the knowledge of how to do them is also quite diffuse.
- But AI is emerging tech and the knowledge is not widespread. A deep understanding of AI is a differentiator.
 - What accuracy can we get for a customer service chatbot?
 - What technical approach (prompting, fine-tuning, agentic workflow) will work best?
 - How can we get a voice app to have low latency?
- Making the right technical choices saves a lot of time chasing blind alleys.

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GenAI building blocks

A lot of GenAI tools have just emerged the past two years!

- Prompting, agentic workflows, evals, guardrails, RAG, voice stack, async programming, data extraction, embeddings/vectorDBs, fine tuning, graphDB with LLMs, agentic browser/computer use, MCP, reasoning models....

These are building blocks that you can combine to build wonderful products.

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GenAI building blocks



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GenAI building blocks



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GenAI building blocks



DeepLearning.AI

Filters

Course Type ⓘ

- ☐ Short Course
- ☐ Course
- ☐ Specialization


Level

- ☐ Beginner
- ☐ Intermediate

Popular Topics


- ☐ AI Frameworks
- ☐ Chatbots
- ☐ Computer Vision
- ☐ Data Engineering

Short Course




Multi AI Agent Systems with crewAI

Short Course




Improving Accuracy of LLM Applications

Short Course




Large Multimodal Model Prompting with Gemini

Short Course




Serverless LLM Apps with Amazon Bedrock

Short Course




Evaluating AI Agents

Short Course




Prompt Compression and Query Optimization

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Short Course




Multimodal RAG: Chat with Videos

Short Course




LangChain: Chat with Your Data

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ChatGPT Prompt Engineering for Developers

Short Course




Knowledge Graphs for RAG

Short Course



Build Apps with Windsurf's AI Coding Agents

GenAI building blocks



DeepLearning.AI

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Multimodal RAG: Chat with Videos




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LangChain: Chat with Your Data




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ChatGPT Prompt Engineering for Developers




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Knowledge Graphs for RAG



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Build Apps with Windsurf's AI Coding Agents

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Conclusion: Building at Speed with AI

- Concrete ideas buys you speed
- Rapid engineering with AI coding assistance buys you speed
- Rapid feedback buys you speed
- Understanding AI technology buys you speed

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