

THIEL FELLOWSHIP · 2026

Substrate.

AI agents for the physical world.

The agentic platform for deep-tech engineering.

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THE OBSERVATION

Every great AI company is being built for software developers. The engineers who build the physical world have nothing.

SOFTWARE

Cursor. Copilot. Devin. Lovable.

Multi-billion-dollar companies building agentic AI for software engineers. The category is crowded. Every fund has a thesis. Every grad with an LLM API key is launching one.

DEEP-TECH ENGINEERING

Chips. Circuits. Embedded. Hardware.

The engineers building chips, satellites, defence systems, energy grids, and medical devices still work in tools designed in the 1990s. The AI revolution skipped them. Nobody is building the platform.

Why? Because to build it, you need a founder fluent in both AI and hardware. That intersection is empty.

THE PLATFORM

Substrate is the agentic platform for deep-tech engineering.

A family of specialised agents that automate the work engineers do across the entire deep-tech stack.



TRACER

SHIPPING

Modernise legacy circuits

Reverse-engineers and modernises legacy electronic designs.



SCHEMATIC

Q3 2026

Design new circuits

Generates new circuit designs from functional intent.



EMBEDDED

Q1 2027

Low-level firmware

Writes and verifies embedded code against real hardware.



MECHANICAL

Q2 2027

3D / CAD generation

Produces parametric mechanical designs from spec.



SILICON

2028

Chip design & verification

Agentic RTL design, synthesis, and verification.



ASSEMBLY

2028

Chip packaging & assembly

Optimises packaging, layout, and assembly workflows.

THE WEDGE

Tracer: the entry point that funds the platform.

Tracer modernises legacy electronic circuits. It's the first agent on the Substrate platform, chosen carefully: it's the wedge that opens every other agent's market.

01**Existing budgets, today.**

Defence reshoring, supply-chain security, and obsolete-component crises have created urgent procurement budgets in primes, OEMs, and medical-device companies. We sell into a market that already has money allocated.

02**No behaviour change required.**

Engineers come to Tracer with problems they already have. We don't fight a tooling-adoption battle the way Cursor did. Modernisation is a service-shaped wedge that we automate.

03**AI-tractable today.**

Multimodal frontier models and agentic orchestration finally make schematic-level reasoning real. We've already proven the technical core (AMD contest, 2nd of 100+ teams).

04**Every project trains the platform.**

Each modernisation engagement gives us proprietary design data, real workflows, and engineer relationships. That data and trust transfer directly to Schematic, Embedded, and the rest.

WHY IT COMPOUNDS

Each agent makes the next one faster, cheaper, and harder to compete with.

TRACER

SCHEMATIC

EMBEDDED

MECHANICAL

SILICON

ASSEMBLY

SUBSTRATE PLATFORM

Shared agentic core • Multi-provider LLM router • Domain-trained models • Engineer-facing surface

Built once. Reused by every agent. New agents inherit reasoning, infrastructure, and customer trust.

DATA

Proprietary design corpus

Every Tracer engagement adds proprietary schematics and design rationale. Each agent we ship trains on it.

DISTRIBUTION

One customer, many agents

We earn the engineer's trust once with Tracer, then cross-sell Schematic, Embedded, and beyond into the same workflow.

INFRASTRUCTURE

Shared agentic core

Routing, tool use, simulation, and verification are built once. New agents are product decisions, not re-architecture.

EVIDENCE

Tracer is built. The hardest part of the platform is already proven.

2nd

of 100+ teams

AMD Pervasive AI Contest

Built the AI core that infers a circuit's components and functional intent end-to-end. The exact technical primitive Tracer is built on.

150

person deployment

Argus (prior venture)

Multi-agent AI tool deployed across 180DC Southampton. Proves I can take agentic systems from prototype into real users' workflows.

£3K

Enterprise Prize

EF + Future Worlds + Blackmont

Pitched at Entrepreneur First and Future Worlds. Active integration talks with Blackmont Consulting.

1st

of ~15 teams

BAE Systems Hack the Future

Built a full hardware + backend + UI system end-to-end. Hardware fluency that almost no AI founder has.

WHY NOW

AI finished software. Deep-tech is what's next, and the window is open.

01 Frontier models can finally reason about physical systems.

Multimodal frontier models read schematics, datasheets, CAD, and netlists in the same pass. The visual half of engineering is finally tractable.

02 Agentic orchestration crossed the reliability line.

Tool-using, multi-step agents are no longer demoware. A multi-provider router can chain inference, simulation, and verification without falling apart.

03 Defence reshoring and American Dynamism made this commercially urgent.

Real budgets are being allocated this fiscal year for legacy modernisation, secure supply chains, and domestic chip and hardware capacity.

04 The deep-tech AI category is empty while software is saturated.

Thousands of AI companies fight for software developers. Almost nobody is building for the engineers who design the physical world. The window is now.

WHY ME

This platform requires a founder fluent in both worlds. Almost nobody is.



HARDWARE FLUENCY

Electronic Engineering at Southampton. Zepler Prize for top practical lab grades in cohort. Embedded systems, FPGA, signal processing, circuit theory: the actual primitives every Substrate agent reasons over.



AI DEPTH ON THIS PROBLEM

Already built the platform's technical core: 2nd of 100+ teams in the AMD Pervasive AI Contest for circuit-intent inference. Multi-agent orchestration, multi-provider routing, retrieval-augmented design memory.



SHIPPING DISCIPLINE

Argus: deployed to 150 users. £3K Enterprise Prize. EF + Future Worlds pitches. Blackmont PM role on a live AI tender platform. Accenture Data & AI internship in client delivery. I get things in front of users.

Most AI founders can't read a schematic. Most hardware engineers can't ship an agentic system. The intersection is where Substrate gets built.

WITH THE FELLOWSHIP

12 months: from Tracer in production to two agents and a Seed round.

● MONTHS 1 - 3**Relocate to SF**

Leave Southampton mid-degree to build full-time. Embed in the Bay Area defence-tech and frontier-AI ecosystem. Tracer to first paid pilots.

● MONTHS 3 - 6**Land design partners**

Three to five paid design partners on Tracer across defence primes, industrial OEMs, and medical-device firms. Real schematics. Real workflows.

● MONTHS 6 - 9**Ship agent #2**

Hire two senior engineers (EE + AI infra). Ship Schematic agent into existing Tracer accounts. Cross-sell proves the platform thesis.

● MONTHS 9 - 12**Seed round**

Raise from American Dynamism / deep-tech investors on the back of two shipped agents, real revenue, and the platform compounding pattern.

Year one is Tracer. Year two is the platform thesis proven. Year five is the deep-tech engineering layer of the AI economy.



Substrate.

Software ate the world.

AI agents are about to build it.

Substrate is where they live.

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