

Aaron Kushner, Ph.D.

Bio-inspired materials scientist and inventor · now an AI-native builder of research systems, engineering programs, and public education.

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STATEMENT

What made Jobs a stand-out success was not just intellect — it was also the combination of **intuition** and **experiential wisdom** he felt was an asymmetric innovation booster. I am **Gen-X** with a **Ph.D. in Chemistry**, and a documented record of exceptional **non-linear/lateral thinking** and intuition resulting in multi-disciplinary innovations — two materials patents and a self-healing polymer platform that came from asking what engineering materials problems nature already solved, and extracting the core reproducible nano-engineering design.

*"Intuition is a very powerful thing, more powerful than intellect, in my opinion. That's had a big impact on my work. Western rational thought is not an innate human characteristic; it is learned and is the great achievement of Western civilization. ... the power of intuition and **experiential wisdom**." (emphasis added)*

STEVE JOBS, TO WALTER ISAACSON · STEVE JOBS, 2011 · P.73–74

My last two years are effectively the experiment: one non-engineer, an AI workbench I built myself, and a set of programs that would each have required a funded team.

I also possess the skills, awareness, empathy, and experience required to lead a team. The era of Jobs, Musk, and Gates required a harsh personality to convert vision into shipped product. It no longer does. AI, harnessed properly ("Personal AGI"), supports and encourages the drive and focus that used to demand a difficult leader. The other brutal requirement is gone too: manually separating A-players from B-players by force of personal judgment. With a provenance-documented build and performance record at every seat, people self-sort on evidence. What remains scarce is the thing the machine cannot supply — taste, cross-domain intuition, and knowing which problem is worth solving... there too quantity/quality of output in terms of company (and personal/professional) value generation is now easily assessed.

AI PRACTICE — THREE AND A HALF YEARS

- DEC 2022** Opened an OpenAI account **seventeen days after ChatGPT was released to the public**. First paid use February 2023. Interesting and incrementally efficiency enhancing.
- MAR 2024** ChatGPT Plus. The GPT-4 era — daily working use across research, writing, and code, cut and paste to VS Code.
- APR–DEC 2025** ChatGPT Pro. Built independently (browser-to-vscode): a **multi-aircraft collision-avoidance simulation** with logged experiments and a web viewer, an **adaptive Mandarin tutor** with speech-signal analysis and per-user skill tracking, a structural-engineering planner, a literature-harvesting pipeline, and Unity XR work. Versioned by copying folders and stamping the date — the tooling could not carry state between sessions.
- DEC 2025** Switched to Claude.
- MAR 2026 —** First Claude Code session, 11 March. **Everything measured below starts here**, and so does every program in the next section.

THE MEASURED RECORD

Not estimates. Prompts and sessions are counted from Claude Code's own history; turns and tokens from a per-turn ledger that covers June–July 2026; commits from the repositories themselves. Each figure states the window it covers.

11,320

prompts across 604 working sessions since 11 March 2026

101,387

model turns in June–July 2026 alone

42.2 billion

tokens of model context processed in that same two-month window

173 million

output tokens generated — drafts, code, analysis, artifacts

2,459

commits since 30 March 2026, across 58 project directories

1

person — no engineering staff, no external development budget

The practice is not prompting. It is systems design: parallel collaborating specialist agents with both deep knowledge and defined scopes, memory that survives session death, verification gates that block unevidenced claims, and a documented behavioral layer refined continuously against real failures.

PROOF IN RESULTS

Each program below links to its full description. State is current as of July 2026.

- **General Research & Development Workbench** **WORKING PROTOTYPE**

The flagship. A multi-agent orchestration harness built on Claude Code: persistent memory across sessions, continuity protocols that survive process death, parallel specialist lanes coordinating through durable artifacts, and verification gates that block a claim of “done” without observed evidence. Not a wrapper — a behavioral layer accumulated from months of daily use. The version I run in my own IDE is a **working prototype** and is what produced everything below; the hosted VM workbench is **in development**; the mass-market layer that would make it operable by a non-technical user is **conceptual but inevitable** — and its target now has a market-legible name: **Personal AGI**, models and behavior uniquely tailored to each individual user. I built this harness to adapt to one person, and it worked: it carries my context, standards, and working style across sessions — the provenance record above is the measured proof. The institutional application adds: **Tokenomics** — the AI-spend measurement problem the business press says has no accounting practices yet. Every seat’s output flows to a higher-altitude seat as a synthesized report of the type, scale, and impact of granular token spend; the synthesis repeats up the chain — seat to team to corporate — with at least one human signing off and making every final call. Each claim is measured, per-seat, and traceable to the commit; the generator is push-button, and its first real report renders unsigned until a human signs it. Tokenomics is the investor side; the human side is the removal of manager–builder friction.

- **The AirPark Digital Twin** **BUILT · DEMONSTRATED**

An aircraft program run by one person: layout and mass balance, CFD over the real airframe, structural FEM, flight simulation, automated engine-out landings, crash survivability. The pass/fail oracle is physics, so the loop closes without a human in it. The demonstration product of record for the workbench, and the seed of a universal atoms-to-objects-to-systems engineering engine. **Pre-AI equivalent: roughly \$250,000, a team of engineers and lawyers, one year. Actual: roughly \$5,000 plus a subscription, one non-engineer, three months.** The \$250,000 still needs to be spent on a team of engineers and lawyers as it becomes a real-world business. But the investment risk is reduced dramatically.

- **Responsible AI Diffusion** **AUTHORED · VERIFIED · PUBLISHED**

Independent policy research on maximum AI diffusion at maximum safe speed, communicated to the public (prototype). Three papers, each subjected to multi-model adversarial review before release and published with quantitative AI-use transparency — the contribution of the machine is disclosed and measured, not implied.

- **Provenance in the AI Age · AuthorAware** **PLATFORM LIVE**

Author-side certification and a shared hash registry: tamper-evident records of how work was actually made, so authorship survives contact with generative tools.

- **TeacherAware** **PRODUCT COMPLETE · READY TO DEPLOY**

The demonstration product of the provenance work, built out to completion: writing integrity for grades 7–12 that records the writing *process* and issues a tamper-evident credential, instead of inferring integrity from the finished product. Free and LMS-friendly.

- **The Citizen Scientist Exchange** **MVP SHIPPED**

Verifiable independent research: three frontier-model reviewers per endpoint, tamper-evident by construction, human-decided at the editorial desk. Review capacity scales with participation rather than with the free time of a scarce referee pool.

- **open-ed** **TWO PRODUCTS LIVE, FREE**

Adaptive, case-based open education — the matched school for any mind, at zero marginal cost. Shipping as free

products while the K-12 engine matures.

▶ **1 + 1 → Attention Is All You Need · the LADDER curriculum** CURRICULUM SHIPPED, FREE

41 lessons from 1 + 1 to Attention Is All You Need, with an interactive map of the whole route, a teaching figure at every station, and the history of the person who found each idea — built for people who did not decide to pursue STEM, and people who prefer spatial reasoning to symbolic notation.

▶ **Mandarin Lab · Tone Lab** LIVE APP

Speak the sentence and your pitch contour is scored per syllable against native renderings, normalized to your voice — tone sandhi handled. An AI tutor coaches you in Mandarin at your level; your skill map persists across visits.

• **The Bioengineering Machine** STARTUP SEED

The workbench pointed at biology: full-suite in-silico R&D, de-risking programs that once demanded eight-figure wet-lab spend.

• **FlyIRL · the SkyPark** PRE-LAUNCH VALIDATED

Over 1,000 signups at under \$2 per lead in under a month; the AirPark digital twin is its engineering arm.

SELECTED PRE-AI RECORD

NSF Convergence Accelerator proposal — the PRE-VIS Kit · ScaledNano, Inc., with Cornell University and University of Dayton

Principal author of a trans-disciplinary ed-tech/av-tech crossover research proposal: a Parallel Reverse Engineering Virtual STEM kit using bio-inspired design — students reverse-engineer a bird and a “birdplane” in parallel — targeting 12–15-year-olds, the developmental window that most shapes STEM career interest and mathematical self-efficacy, with an explicit focus on underrepresented and underserved populations, domestically and in India. Full proposal available on request.

CEO / CTO, GK Materials · 2012–2015

Commercialized a bio-inspired self-healing polymer platform.

Postdoctoral Researcher, Guan Lab, UC Irvine · 2010–2012

Developed new project directions; mentored undergraduate researchers.

Research Associate, Advanced Medicine / Theravance · 1999–2003

Medicinal chemistry.

Consulting · Drywired LLC (nanocoating IP, 2020–2021) · GPH Private Equity (materials and materials-informatics investments, 2016–present)

EDUCATION

Ph.D., Bio-inspired Nanomaterials

University of California, Irvine · 2010

B.S., Organic Chemistry

University of California, Berkeley · 1999

Electrical & Mechanical Engineering

Laney College · coursework, self-directed toward the aircraft program

The College Preparatory School

Oakland, California · 1994

PATENTS & PUBLICATIONS

Patents: Bio-inspired method to obtain multifunctional dynamic nanocomposites · Synthesis of multiphase self-healing polymers from commodity monomers.

Selected publications: Forced unfolding of single-chain polymeric nanoparticles · Direct correlation of single-molecule behavior with bulk mechanical properties for a biomimetic polymer · Supramolecular block copolymers for self-healing thermoplastic elastomers · Multiphase design of autonomic self-healing materials · Modular design in natural and biomimetic soft materials · A biomimetic modular polymer with tough and adaptive properties · Biomimetic design of a reversibly unfolding cross-linker to enhance mechanical properties of 3D network polymers.

TECHNICAL

Multi-agent AI orchestration and harness design · adversarial multi-model evaluation · multifunctional materials design · molecules-to-materials multi-scale simulation, electronic structure to mechanical properties · materials genome library and data pipeline design · real-world experiment design and data engineering for a practical materials-genome model over a useful proprietary slice

of chemical space · conversion of laboratory research into IP · multi-step organic and polymer synthesis to kilogram scale · molecular characterization (NMR, IR, MS, X-ray, GPC, DLS) · materials characterization (DSC, TGA, DMA, Instron) · nanostructure characterization (AFM, SEM, TEM, SAXS, GI-SAXS) · machine learning · English (native), Mandarin (intermediate).