

Arash Banaeian

I take ambiguous, high-constraint problems from first principles to production systems, and stay accountable for them there.

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IN BRIEF

Give me the goal. The specification, architecture, scenarios and edge cases are my job. I work like a researcher (question the assumptions, read the evidence, model the people, data, constraints and failure modes) and then build for production. My work spans **systems architecture, AI and agent systems** and **data science and statistical modelling**, with earlier depth in **psychometrics, cognitive science and business planning**.

01 Strongest proof: eLEMZA, a regulated e-signature platform

2026



1,310

new users in 23 days of September
old best month: 298

3.7×

revenue collected, 1–23 September
vs old best full month

99.97%

of 2.0M requests served without a server error

1,329/h

measured signing ceiling
average load today: 2.8/h

02 The thread through my work

FOUR DOMAINS, ONE ARCHITECTURE

	01 Elicit <i>what the person gives</i>	02 Model <i>how the system holds it</i>	03 Decide <i>what it chooses</i>	04 Act <i>what it does</i>
Poian talent & career guidance 2020–23	Intake, family interview, six psychometric instruments	Scored profile joined to qualitative case notes	Career-fit matching; a three-advisor commission sets three paths	Final consultation and report; 4,000+ people assessed
EduGPT Persian-first AI tutor 2023–25	The learner's question, history and level	Textbook rebuilt as structured knowledge; learner memory	Hybrid retrieval (dense + BM25, RRF, reranking); adaptive path	Grounded answer citing page and paragraph
BITA AI sales agent 2023–25	Conversation, voice, product photos, receipts	Layered memory; intent, sentiment, personality, journey state	Adaptive sales strategy under live A/B tests	Quote, confirmation, payment evidence, human hand-off
eLEMZA regulated e-signature 2026–	Form fields on scanned originals; identity and face match	Contracts, parties, roles, organisations, audit trail	Signing workflow with provider health gates	PAdES signature via a licensed CA; API and signed webhooks

Each time: enter an unfamiliar domain, learn how its people actually behave, and build the system around it.

eIEMZA · CTO & Systems Architect

JAN 2026 – NOW

Sole technical owner of an e-signature, identity and PKI platform, rebuilt from its business and regulatory contract rather than from the legacy code.

- **Owned the whole path from a one - page brief:** market research, business plan, UML, BPMN, DFD and ERD models, product, architecture, build, compliance, migration and production. Live in 70 days, on 21 April 2026.
- **Outcome, before any marketing.** August 2026: 1,347 contracts, 1,025 new users and 52 paying customers, against the old platform's best month of 360, 298 and 16. 1–23 September: 1,677, 1,310 and 93, and 278 signers paying their own share under a new counterparty -pays model.
- **Several hard constraints in one system:** PAdES signatures via a licensed CA, identity verification (4,600 live registry checks) and face matching, form fields on scanned documents, a LangGraph multi-agent legal assistant (plan, draft, critique, citation check), organisations and roles, REST APIs with signed webhooks, a PHP SDK and a WordPress plugin.
- **Moved two years of live data,** 18,470 rows across nine tables with identifiers intact, in a two-minute cut-over.
- **The code is the output; the governed engineering system is the work** (right). Throughput it made safe: 4,291 commits since February, 2,751 of them in the busiest 30 days; about 10,000 tests; 624K lines of PHP, 303K of them tests; 317 migrations.

BITA · Founder

2023 – 2025

A multi-channel AI sales agent on WhatsApp, Instagram and Eitaa, rebuilt four times in 14 months against real conversations.

- **FastAPI and Qdrant core** (17,051 lines, 72 endpoints, 270 tests): a plan -then- respond loop over layered memory, with retrieval across product and business documents and a web - search fallback.
- **Customer model** of intent, sentiment, personality and journey state, in effect a conversational CRM, driving adaptive sales strategies under live A/B tests.
- **Carried a whole sale in chat:** discovery, quote, confirmation, payment evidence read from a receipt photo, and hand-off to a human, across isolated multi-account sessions.

EduGPT · Founder & AI Systems Architect

2023 – 2025

A Persian-first tutor that treats the textbook as a knowledge source, not as prompt context.

- **Ingestion** that rebuilt document hierarchy, merged paragraphs split across pages, normalised Persian text and extracted concepts and metadata.
- **Hybrid retrieval** (dense vectors, BM25, reciprocal-rank fusion, reranking) behind query analysis that chose the execution path.
- **Grounded answers** citing page and paragraph, with learner memory, adaptive difficulty and knowledge-gap detection.

Poian · Co-founder & R&D Lead

2020 – 2023

A talent-assessment centre, still operating; I remain a shareholder. Turning complex human information into structured decisions, with psychologists.

- **Designed the service end to end:** business model, assessment logic, scoring, career matching, reporting, and the workflow joining assessment to human counselling.
- **Joined numbers with judgement:** six psychometric instruments, a family interview, follow-up assessments and a three-advisor commission producing three trajectories. Statistical modelling in R and SPSS, clustering and segmentation, Power BI dashboards; 4,000+ people assessed.

04 Beyond the main line

THE SAME CURIOSITY, OTHER DOMAINS

01	02	03	04
Medical imaging A CNN classifier that detects breast cancer in radiology images, from data collection to evaluation.	Financial markets A trading system with statistical signals and back-testing, and Telegram bots to run it.	Research statistics Statistical analysis consulting for doctoral research: multivariate models, clustering, inference.	Mind and sky Neuroscience study behind my people-modelling work; at 18, the youngest paid astronomy instructor in Mashhad.

MOST USEFUL FOR

- 01 Idea to production from a one-page brief
- 02 Rebuilding a system that outgrew its design
- 03 Production AI, agent and data systems
- 04 Fractional CTO or technical co-founder

GOVERNING AI AGENTS

- Rules as code 23
- Enforcing hooks 17
- Verification law every claim
- Adversarial review every change
- Deploy assertions 7
- Failure catalogue 100

observed failure, then a mechanical guard

TOOLKIT

Systems & product design

UML, BPMN, DFD, ERD, C4, DDD, ADRs · PRD, SOW, proposals, business and marketing plans

AI & agents

LangGraph, LangChain, LlamaIndex, Langfuse, Hugging Face, fine-tuning (LoRA), RAGAS · Qdrant, Weaviate, pgvector

ML & data science

PyTorch, TensorFlow, scikit-learn, XGBoost, CNNs · pandas, NumPy, R, SPSS · Bayesian and multivariate statistics, clustering, graph analytics · Power BI (certified), Tableau

Software & data

Python, FastAPI, Django, PHP, Laravel · React, Next.js, Vue, TypeScript · microservices, REST, WebSockets · PostgreSQL, SQL Server (certified), Redis · Kafka, RabbitMQ, Celery

Delivery & security

Docker, CI/CD, Prometheus, Grafana · PKI and PAdES, KYC, security certification in progress