

Anand Bhandari

Principal AI Full-Stack Engineer · CTO @ SOLS Group | Building production LLM-powered web & mobile products | TypeScript · React · Next.js · Node.js · Claude / OpenAI / Gemini / Ollama · MCP | 14+ Yrs Experience

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Building production AI systems — from an adaptive AI English-learning platform for Malaysian students, to an MCP server that lets AI assistants run company operations, to 105 shipped indie tools.

PROFESSIONAL SUMMARY

Principal-level full-stack engineer and CTO with 14+ years shipping web, mobile, and AI-powered products, now focused on building production LLM applications end to end. I own the architecture and hands-on delivery of AI features inside real products: an adaptive AI English-learning platform, an internal operations platform exposed to AI assistants through a **permission-scoped Model Context Protocol (MCP) server**, LLM pipelines that turn meeting transcripts into weekly reports, and an LLM-driven automated testing agent. Multi-provider by design — **Anthropic Claude, OpenAI, Google Gemini, OpenRouter, Groq, and local models via Ollama**. TypeScript-first stack: React, Next.js, React Native, Node.js, Postgres, Firebase, Google Cloud. Anthropic-certified across the Claude API, MCP, Agent Skills, and Claude Code, and I run my daily engineering on an AI-native workflow I built myself. I lead **20+ engineers** and ship AI features into production, not prototypes.

AI ENGINEERING AT A GLANCE

AI

14+ years	105 indie tools shipped	2 MCP servers built	20+ engineers led	6 Anthropic certifications
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CORE COMPETENCIES

AI Engineering: Production LLM application design · Multi-provider, provider-agnostic LLM architecture (Claude, OpenAI, Gemini, OpenRouter, Groq, Ollama) · Model Context Protocol (MCP) servers & clients · AI agents & tool use · Agent Skills · LLM-driven automation & testing · Speech AI (Whisper STT, ElevenLabs / MiniMax / Piper TTS) · Multimodal (vision models, image & video generation) · Local / privacy-first AI · Prompt engineering · Retrieval-Augmented Generation (RAG) · AI-assisted engineering workflows (Claude Code)

Full-Stack Product Engineering: End-to-end web & mobile delivery · React / Next.js / React Native / Expo · Node.js APIs · Enterprise API design & system integrations · Progressive Web Apps · Desktop apps (Electron, Tauri) · Cloud-native on GCP, Firebase, Vercel

Leadership & Delivery: Technical vision & roadmapping · Team mentorship (scaled 5 → 20+ engineers) · Agile product delivery · Code reviews · Stakeholder management · DevOps & deployment pipelines

TECHNICAL SKILLS

AI / LLM: Anthropic Claude API · OpenAI API · Google Gemini · OpenRouter · Groq · Ollama & LM Studio (local LLMs, vision models) · Model Context Protocol SDK (stdio & streamable HTTP transports) · Agent Skills · Claude Code · AI agents & tool calling · LangChain · LlamaIndex · RAG · Embeddings & vector search (pgvector) · Prompt engineering · Whisper / faster-whisper (STT) · ElevenLabs, MiniMax, Piper, Edge TTS (speech) · Gemini & MiniMax image generation · Remotion & HyperFrames (programmatic video)

Languages: TypeScript, JavaScript (ES6+), Java, Kotlin

Web / Front-End: React, Next.js (React Server Components, Server Actions), Qwik, Builder.io, Tailwind CSS, shadcn/ui, Radix UI, Redux, Zustand, TanStack Query, React Hook Form, Zod, TipTap, PWA

Mobile & Desktop: React Native, Expo (Expo Router, NativeWind), Android, iOS · Electron, Tauri

Back-End & APIs: Node.js, Bun, Express, Fastify, tRPC, Prisma, Drizzle ORM, Better Auth, pg-boss job queues, REST & GraphQL APIs, WebSockets, enterprise API design, system integrations

Cloud & DevOps: Google Cloud (GCP), Firebase, Cloud Functions, Vercel, AWS S3, Docker, CI/CD, GitHub Actions

Databases: PostgreSQL (+ pgvector), MongoDB, Firestore, Redis, SQLite, Supabase

Integrations: HubSpot API, CTOS, Mailgun, Stripe, Google Sheets, WordPress REST API, Respond.io, ClickUp, Linear

EXPERIENCE

CTO / Principal Full-Stack Engineer & Solution Architect — SOLS Energy (SOLS Group), Malaysia

Sep 2022 – Present

- Lead technology strategy, product architecture, and digital transformation across the group's web, mobile, and AI product lines; hands-on across the full stack while managing and mentoring **20+ engineers**.

- Architected and shipped **ACE**, an AI-powered English-learning platform for Malaysian SPM students — an adaptive learning engine that builds personalized study paths from diagnostic tests and gap analysis, with timed mock exams mirroring the national SPM format (React Native + web, Node.js, TypeScript, Firebase).
- Built **SOLS Boss**, the group's internal operations platform (departments, tasks, work requests, SOPs, standups, meeting notes, reminders, HubSpot and Google Sheets sync; Next.js, Postgres/Drizzle, pg-boss, S3) with an Expo mobile client, and exposed it to AI assistants through a **permission-scoped MCP server** over streamable HTTP — per-user hashed API keys with expiry, read / read-write grants with tool allow-lists and department scoping, rate limiting, and an audit log on every call — so assistants like Claude act with the same permissions as the app.
- Built an **LLM weekly-reporting pipeline**: a Next.js app plus browser extension that ingests meeting transcripts and generates structured weekly reports through a provider-agnostic, OpenAI-compatible LLM client with JSON-mode output, so the model and provider are switched at runtime, not in code.
- Built an **LLM-driven automated testing agent** for ACE (Bun, TypeScript, Ollama) that runs smoke, guided, and exploratory test sessions from app maps and prompts, and writes reports.
- Set the group's LLM-integration patterns: provider-agnostic clients across Anthropic Claude, OpenAI, Google Gemini, and OpenRouter, with Ollama for private on-premise workloads; chose models and providers against cost, latency, and accuracy.
- Architected the renewable-energy web platforms and cloud infrastructure (Next.js, Firebase, Google Cloud, DigitalOcean, Vercel): mobile and PWA apps for real-time solar monitoring serving **10,000+ users**, the solar-subscription self-care system, and the SOLS Green solar-financing journey.
- Spearheaded the **HubSpot API** integration on Firebase Cloud Functions to improve customer engagement and sales workflows, and a **CTOS** credit-report integration for risk assessment.
- Established CI/CD pipelines, code-review practice, and production-readiness gates across all squads; introduced AI-assisted engineering (Claude Code, MCP, agent skills) into day-to-day delivery.

Solution Architect | Web & Mobile Platform Innovator — SOLS Foundation (SOLS 24/7), Malaysia

Jan 2021 – Jan 2026

- Oversaw all technical solutions and software process management for the non-profit; designed and maintained education platforms and internal systems serving **4,000+ families** — Skills Hub, Solar Academy, and TVET Academy with an LMS for enrollment, tracking, and certification.
- Led API integrations, the full software lifecycle (development, testing, deployment, maintenance), internal technical support, and mentoring of the development teams.

Mobile Application Developer / Team Lead — SOLS 24/7, Malaysia

Jan 2019 – Jan 2021

- Managed Android, Web, and iOS projects and served as primary developer for the SOLS SMART, SOLS EDUCATION, and SOLS CLASSROOM apps and websites; built the cross-platform mobile apps in React Native from scratch.
- Managed API integrations and backend systems; supervised testing, deployment, and agile processes; grew the engineering team from 5 to 20+ developers with CI/CD, code review, and quality gates.

Senior Software Engineer — IBM, India (Bengaluru)

Jan 2013 – Jul 2016

- Built client-side web applications and mobile-responsive portal UIs within IBM global teams under Agile; served as Scrum Master and contributed to the IBM Technology Adaptive Program (TAP).

Earlier roles

- **Web & Mobile Developer**, MINDIII Systems, India (2016–2017) — Android/web apps, RESTful APIs, cloud messaging.
- **Software Developer**, ManpowerGroup, India (2011–2012) · **Web Developer**, myMO IT Solutions, India (2009–2011).

AI-NATIVE ENGINEERING WORKFLOW

AI

- **Custom Claude Code harness**: hooks on 14 lifecycle events (session context injected from a product-requirements vault, secret-file guard, voice replies), 24 plugins, and 15+ self-authored skills — guided flows for git and PR work, testing and security review, a SQLite project board for agents, Boss operations over MCP, and end-to-end video production.
- **Agentic Engine**: a reusable system for spinning up AI-run applications — Markdown instructs, JavaScript executes, Zod schemas validate, and no external effect happens without human approval; lessons from each app fold back into the engine.
- **MCP builder**: two production MCP servers (SOLS Boss over streamable HTTP; News-Tube over stdio) so Claude Code, Cursor, and other agents operate real products.
- **Local AI tools CLI**: a globally linked tool suite with one contract (result to stdout, `--json`, `--confirm` for destructive ops) covering Postgres, WordPress, image and video generation (Gemini, MiniMax), LLM calls (OpenRouter, Ollama, LM Studio), and TTS (ElevenLabs, MiniMax).

- **Multi-agent tooling:** manage ~30 AI coding CLIs (Claude Code, Codex, Gemini CLI, Cursor, OpenCode, Aider, Goose and more) through a custom skill; repos carry `AGENTS.md` and `CLAUDE.md` so any harness can work them.

SELECTED AI PROJECTS

AI

- **NixBiz — Indie AI Lab** · nixbiz.com · **105 tools shipped**, open source on GitHub: 99 desktop apps (Windows & macOS), 2 Chrome extensions, 2 web apps. AI subset: **chatnix** (private local chat and document Q&A on Ollama), **asknix** (drag a screen region, ask a local AI), **meetscribe** (meeting recorder, local transcription, AI summaries), **subnix / scribenix** (Whisper subtitles and transcripts), **textgrab / pdfocr** (screen and PDF OCR), **bgone / upscalenix** (on-device background removal and upscaling), **PageEcho** (Gemini page summaries read aloud), **Smart Bookmarks** (OpenAI / Gemini summaries and tags). Directory site built in Next.js with a companion Android app.
- **News-Tube** · automated TV-style news channels — typed segments self-render frames, tickers, anchor voiceover, and transitions; Gemini writes scripts and headlines, an Ollama vision model picks images, Remotion renders; ships its own studio MCP server so coding agents can drop in content. *Next.js, React, Remotion, Zod*.
- **Screencast Creator** · screen capture, hand-drawn annotation, keyframe motion, AI voiceover (ElevenLabs, MiniMax), Groq Whisper word-level captions, Remotion export. *React, Vite, Zustand, Express*.
- **Milo Agent** · local-first developer workspace — terminals, prompt library, Monaco editor, agent runs and dispatch rules, shared memory, schedulers, and a `milo` CLI; Ollama chat with local tool calling. *Electron, React, Express, WebSocket, node-pty*.
- **Nix Translator** · Expo React Native translator — OpenRouter as LLM gateway, Gemini, Whisper speech-to-text, ElevenLabs text-to-speech; keys in secure storage.
- **Story-video pipeline** · narrated explainer and Shorts production from a script — MiniMax scene images, ElevenLabs voice with word timings, HyperFrames captions and render — driven by a guided Claude Code skill.
- **Open source (github.com/AnandBhandari1): WhisperDrop** (local hotkey speech-to-text, GPU-accelerated, no cloud) · **AI Text Rewriters** (multi-provider rewriting via Groq / OpenRouter / Ollama / Gemini + Edge TTS) · **FastSimple** (Whisper + Ollama + LanguageTool, five writing tones) · **Piper TTS Web UI**. All MIT.

PLATFORM & PRODUCT WORK

- **SOLS Energy Platform** · 2,600+ installations, 30+ MW. End-to-end solar platform — system design, installation booking, and real-time energy-monitoring PWA — integrating HubSpot CRM, payment gateways, and government incentive tracking into one lead-to-installation pipeline; plus the ChargeSingh EV-charging portal and Solar Academy. *Next.js, Qwik, Builder.io, Firebase, HubSpot API*.
- **SOLS Green** · green fintech — RM 0 upfront, instant solar financing, transparent pricing; end-to-end journey from power study to installation with real-time status tracking; GA, Google Ads, and Meta Pixel conversion tracking. *Next.js, React, TypeScript, payment APIs*.
- **SOLS Edu** · 50K+ students, 4 languages. Multi-language e-learning PWA with live classes, self-paced courses, and a Cambridge English pathway. *React, Next.js, MUI, Node.js, MongoDB, PWA*.

CERTIFICATIONS

AI — Anthropic (2026): AI Fluency: Framework & Foundations · Building with the Claude API · Claude Code in Action · Introduction to Agent Skills · Introduction to Model Context Protocol (MCP) · Introduction to Claude Cowork

AI — IBM / Coursera / Codecademy: Generative AI: Prompt Engineering (IBM, 2026) · Basics of AI (IBM, 2025) · Generative AI: Introduction & Applications (IBM) · Introduction to AI (IBM) · Prompt Engineering (Codecademy) · Defending Against AI-Generated Attacks (Codecademy) · GitHub CoPilot for Beginners (Coursera)

Software Engineering: Introduction to Software Engineering (IBM) · Certified React Native Developer (Udemy)

EDUCATION

Bachelor of Engineering — Rajiv Gandhi Technical University (2007–2011)

REFERENCES

Ash Luques — SOLS Energy, Malaysia