Lucas Pacheco

AI / Software Engineer

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Skills

- **LLM Systems:** Tool calling & typed tool schemas | Prompt caching & context management | Agent evaluation & benchmarks | MCP | RAG/GraphRAG | OpenAI SDK | Claude API & Agent SDK
- **Programming Languages:** Python | Rust | TypeScript/JavaScript | SQL | C/C++ | Java
- **Frameworks & Tools:** FastAPI | Django | React | Next.js | Node.js | WebAssembly | LiteLLM | LangChain/LangGraph
- **Databases:** PostgreSQL | pgvector | LanceDB | Qdrant | Neo4j | FalkorDB | Redis
- **Languages:** Portuguese (native) | English (fluent) | Spanish (intermediate)

Professional Experience

September 2026 - Present
AI SwarmBench Engineer (Contract) Remote
Turing

- Design multi-agent benchmark tasks that evaluate coordination in LLM agent swarms.
- Write verifiers that automatically grade agent outputs, and audit agent trajectories for correctness and quality.

February 2026 - Present
AI Developer Rio de Janeiro
OceanPact

- Built the conversational AI agent for a geospatial operations platform (large React SPA): agent loop with parallel tool-calling over ~90 typed tools and real-time SSE streaming with resume-after-reload. Python · FastAPI · OpenAI SDK · Postgres.
- Built a prompt-regression benchmark and logging to measure agent behavior across prompt changes.
- Built a production Knowledge-Graph RAG platform: ingests PDF/DOCX, extracts entities & relationships via LLMs, and persists them to a knowledge graph + vector store. Polyglot persistence (pgvector, Neo4j, Redis), LiteLLM gateway, per-user ACLs. React 19 · FastAPI.

July 2024 - June 2025 (intern April 2024 - June 2024)
AI & Automation Python Developer Rio de Janeiro
Mundivox

- Built and maintained Python tools automating optical-network monitoring and incident handling, including log parsing and reporting with Pandas.
- Built a local RAG chatbot giving the support team access to internal documentation and procedures.

May 2023 - May 2024
Software & Automation Researcher Rio de Janeiro
CBPF (Brazilian Center for Physics Research)

- Developed sensor-based automation systems and algorithms for real-time data processing.

Open Source & Projects

- **cognee** (open-source AI memory library): merged fix for Unicode handling in the FalkorDB adapter (NFKD + ASCII folding) so non-English text no longer breaks Cypher queries, with 9 unit tests; further PRs and bug reports on node-set scoping in hybrid retrieval and dataset consistency.
- **ephemeral-context**: RFC + TypeScript implementation of cache-aware eviction of used context (skills, files, tool results) in agent loops; A/B test: −34% cache reads, −7.2% input cost.
- **GraphMan**: Rust graph library (CLI + WebAssembly + WebGPU visualizer) with three graph representations, benchmarked on graphs up to 4.8M vertices.

Education

Computer Engineering
UFRJ, June 2022 - December 2027

Technical Diploma in IT
CEFET-RJ, January 2019 - December 2021

Certifications

Claude API · MCP · Claude Code · AI Fluency - **Anthropic**
RAG/GraphRAG/Agentic RAG - **Data Science Academy**
CS50x · CS50py · CS50ai - **Harvard**
AI Fundamentals - **IBM SkillsBuild**