

Henry Romp

Full-Stack & Backend Engineer · Python · React · PostgreSQL · AWS

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PROFESSIONAL SUMMARY

Full-stack and backend engineer with 11+ years of production experience across Python, React, PostgreSQL, and AWS. Deep background in API design, security-critical financial systems, and the full application lifecycle — architecture through deployment. Maintains a self-hosted production server running a suite of open-source projects. Active contributor to Bitcoin Core, rust-bitcoin, rust-miniscript, LDK/rust-lightning, and Bitcoin Armory. Comfortable owning complex backend systems end-to-end in fast-moving startup environments.

TECHNICAL SKILLS

Languages Python, JavaScript, TypeScript, Rust, C++, GDScript, Elixir

Frontend React, Tailwind CSS, Node.js, HTML/CSS, Three.js, Web Audio API, Socket.IO, React Native / Expo

Backend / APIs Flask, FastAPI, Phoenix/LiveView, RESTful API design, SQLAlchemy, Psycopg, Uvicorn, JWT

Databases PostgreSQL, MySQL, MongoDB, SQLite

Cloud & DevOps AWS, Google Cloud, Docker, CI/CD, systemd

Systems & Security Linux admin, eBPF, embedded systems integration, networking, cryptography, DevSecOps

Other Git, CMake, Cap'n Proto, Twilio, ffmpeg

OPEN-SOURCE CONTRIBUTIONS

Bitcoin Core | github.com/bitcoin/bitcoin & github.com/bitcoin-core/gui

- Merged PRs into bitcoin/bitcoin — one of the most security-scrutinized open-source codebases in existence: #33470 (move CMAKE_SKIP_INSTALL_RPATH into Guix build scripts) and #33247 (remove redundant CMake RPATH settings).
- Open PRs: #35472 (functional test for feebumper cluster error path), #33828 (guard manpage generation on available interfaces), and GUI #915 (defer PSBT signing until user clicks Send).

rust-bitcoin / rust-miniscript / LDK | Rust Bitcoin ecosystem

- rust-bitcoin #6316 (merged Jun 2026): implement fmt::LowerHex/UpperHex for Witness type.
- rust-miniscript #982 (merged Jun 2026): remove incorrect Ord/PartialOrd from AbsLockTime and RelLockTime — replaces derived ordering with explicit consensus-aware comparison across 8 files (+325/−113 lines).
- LDK/rust-lightning #4664 (open): add probe path selection for background liquidity probing — wires probing_diversity_penalty_msat into RouteParameters and ChannelManager (+506/−41 lines).

Bitcoin Armory | [goatpig/BitcoinArmory](https://github.com/bitcoin-armory/goatpig/BitcoinArmory) (C++, Python, Cap'n Proto)

- Sustained 2026 contribution arc: filed issue #755 (export key list broken on bridge/LMDB wallets) and drove the fix through multiple PRs — #767 (merged: batch private-key export via C++ bridge, +388 lines, gtest coverage), #769 (merged: startup/robustness fixes — CppBridge path resolution, PySide6 crash guard), #770 (open: GUI rewrite wiring DlgShowKeyList to new bridge API), #754 (merged: build fixes for modern GCC).

Additional

- BDK React Native #21 (open): TypeDoc API reference generation from UniFFI TypeScript bindings with CI/GitHub Pages workflow.
- petdance/bobby-tables #111 (merged May 2025): added Elixir/Ecto SQL injection prevention examples.

PROFESSIONAL EXPERIENCE

Software Developer

SPONGE Direct Air Capture | Granville, VT · 2019 – 2024

- Owned full hardware/software stack for a climate-tech startup building a novel direct air capture (DAC) system.
- Designed and built the second functional prototype, integrating hardware controls with custom Python backend software.
- Led software architecture decisions across embedded systems and backend services in a small, fast-moving team.

Developer

Cottonwood Vending — Bitcoin ATM / Kiosk | New York, NY · 2019 – 2021

- Maintained Python backend powering a fleet of 300+ Bitcoin kiosks across NYC — security, uptime, and reliability were paramount.
- Led the full Python 2 → Python 3 migration of a security-critical, high-transaction financial services codebase: dependency upgrades, regression testing, and production rollout.
- Built a comprehensive test suite from scratch (unit, integration, functional), achieving 80%+ code coverage on a previously untested production system.
- Developed internal tooling and backend services to improve customer-support team efficiency.
- Stack: Python 3, Flask, SQLAlchemy, Psycopg, PostgreSQL, plus multiple external payment and compliance APIs.

Technical Support Representative

Cottonwood Vending | New York, NY · 2017 – 2019

- Provided Level II technical support (phone, email, chat) for Bitcoin ATM hardware and software; deep product knowledge led to transition into developer role.

Lead Developer

Metropolitan Motorbikes | Weehawken, NJ · 2013 – 2017

- Designed and built full e-commerce platform on Magento with custom Python backend modules.
- Engineered automated distributor integrations (Western Powersports, Parts Unlimited) to sync product catalogs including descriptions, pricing, and images.
- Designed and implemented RESTful APIs for backend services supporting the storefront.

SELECTED OPEN-SOURCE PROJECTS (hromp.com/portfolio)

node-probe — hromp.com/nodeprobe

Bitcoin node observatory combining eBPF kernel-level behavioral tracing of bitcoind (Rust/Aya, syscall/latency/network probes) with Bitcoin RPC/P2P semantic data, streamed live to a Phoenix LiveView dashboard. Five live views: pulse, blocks, peers, mempool, kernel I/O. ETS caching, PubSub event pipeline, GenServer port bridge between Rust loader and Elixir. Systemd + Mix release deployment. Lite mode for constrained hardware.

RompCRM — rompcrm.com

Elixir/Phoenix field-service CRM with SMS-driven job and employee time tracking, Anthropic-powered message parsing, and a 276-test suite. Full LiveView UI. Production-deployed.

Bitcoinex Explorer — hromp.com/btcexp

Elixir / Phoenix LiveView block explorer built on River Financial's open-source Bitcoinex library. Pluggable chain backend: Esplora HTTP (default, with ETS caching, rate-pacing, and 429 retry) or Bitcoin Core + Fulcrum (full self-hosted sovereign stack). Block / tx / address deep-linked views; D3 charts; single-field decoder for addresses, BOLT11 invoices, and PSBTs. ExUnit + Playwright E2E test suites.

Chordispeak — chordispeak.com

Flask backend API with async task processing; Demucs (htdemucs model) for vocal/instrumental separation; Madmom deep-learning chord recognition; Coqui TTS XTTS v2 for voice cloning to synthesize spoken chord names in the original singer's voice; PyTorch backend; pydub + ffmpeg for audio processing. Web interface with real-time progress tracking. Deployed on Google Cloud. Live in production.

RompMusic — rompmusic.com

GPL-3.0 self-hosted music streaming platform. Server: FastAPI, PostgreSQL, JWT auth, HTTP range requests, Mutagen metadata, beets integration, Docker. Client: React Native / Expo cross-platform app (Android, iOS, web), gapless playback, playlists. Demonstrates full-stack ownership from DB schema to mobile app.

Dark Chess — hromp.com/darkchess

Real-time multiplayer chess with per-player fog-of-war. Node.js + Express + Socket.IO backend; chess.js for authoritative rules; custom server-side visibility masking. Fischer time controls, post-game replay, bot opponent.

Doodlr — hromp.com/doodlr

Collaborative zoomable pixel-art canvas with 6-level hierarchical grid (729x729px). FastAPI + SQLAlchemy + SQLite backend; React Native / Expo cross-platform app (Android, iOS, web); Playwright E2E tests.

Archive-to-Video — hromp.com/archive-to-video

Automates downloading archive.org audio collections, muxing with artwork via ffmpeg, and uploading to YouTube with OAuth. FastAPI backend; CLI mode for headless use.

invoice-gen — hromp.com/invoice

Flask + SQLAlchemy + SQLite backend with user auth, Alembic DB migrations, Unicorn + Docker in production, Nginx reverse proxy. Manages companies, clients, labor/itemized line items, logo upload, and sales tax rates. Live invoice preview, draft autosave (local + server), PDF export. Google Places API autocomplete for address fields.

Anthill — hromp.com/anthill

Godot 4.2 grain-scale voxel ant colony simulator (*Lasius niger*). Pheromone/CHC fields, brood life cycle, task allocation, nest excavation. Research-oriented model with CSV instrumentation and validation export.

GEB Interactive Companion — hromp.com/geb

Chapter-by-chapter interactive companion to Gödel, Escher, Bach (21 chapters). Vanilla JS, Web Audio API, SVG animation, Three.js. ELI5/ELI10/ELI20 reading levels plus per-chapter interactive modules.

Too Hot (its2hot.org) — its2hot.org

Climate awareness platform: compares today's forecast to 30-year historical norms and alerts subscribers when anomalies exceed threshold. Flask + Cloud Run backend; React Native / Expo cross-platform app (Android, iOS) with Firebase push notifications; Cloud Scheduler.

SpeedRead — hromp.com/speedread

Vanilla JS speed-reading web app and Manifest V3 browser extension (Chrome, Firefox, Safari). PDF text extraction via PDF.js; article extraction via Mozilla Readability. Keyboard-driven controls, center-letter highlighting, 60–1000 WPM. Published on Firefox Add-ons (AMO).

Listen — hromp.com/listen

Android app (C/Java) for continuous background audio recording with configurable rolling buffer, gapless segments, WorkManager rotation, and Room DB metadata.

EDUCATION & CONTINUOUS LEARNING

GED · Home-schooled · Middlebury, VT · 2007

Saylor University certifications (April 2026): Bitcoin for Everybody (PRDV151), Principles of Austrian Economics I & II (ECON103/104), Hard Questions on Hard Money (ECON105), Monetary History (ECON120), What Is Money? (ECON135).

Pluralsight Skill IQ (verified): Python for Data Analysis — Expert, 97th percentile · Linux Administration — Expert, 97th percentile · Linux Fundamentals — Expert, 88th percentile · Python Core Language — Expert, 85th percentile.

Self-directed learner since age 13, when an introduction to Gödel, Escher, Bach sparked a lasting interest in computer science and systems thinking. Active on Codecademy and Saylor University. Studies span evolutionary biology, cryptography, economics, linguistics, security, and music — breadth that directly informs technical problem-solving and system design.