

# Francis Mars

Fullstack Software Engineer — Real-Time Systems, Bitcoin & Lightning Network

[francismars.com](https://francismars.com) · [github.com/francismars](https://github.com/francismars) · [x.com/btcfrancis](https://x.com/btcfrancis)

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## PROFILE

Fullstack engineer specializing in real-time systems and Bitcoin payment infrastructure. Built and shipped production apps on Lightning Network and Nostr — from multiplayer games to conference-grade live payment displays. Regular speaker at major Bitcoin events. Stack: React/Next.js, Node.js/TypeScript, Rust, Go, React Native.

Integrates AI-assisted workflows (Cursor, Claude Code, ChatGPT, Perplexity) as a core part of development — for code generation, debugging, refactoring, and architectural exploration. Has rebuilt large parts of PubPay and Chain Duel this way, treating AI as a collaborator that accelerates iteration and reduces friction across complex real-time systems.

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## PROJECTS

### MarsPay — Real-Time Payment Backend · [github.com/francismars/marspay](https://github.com/francismars/marspay)

Node.js · TypeScript · Express · Socket.IO · Lightning (LNbits, LNURL) · Nostr (NDK)

- Authoritative server architecture for real-time paid apps (games, duels, tournaments) — server owns state, clients send inputs
- Lightning integration for deposits, withdrawals, webhook settlement; Nostr (NDK) for zaps; defines Socket.IO protocol used by multiple clients

### PubPay — Decentralized Social Payments · [pubpay.me](https://pubpay.me)

React · Nostr (NDK, NWC) · Lightning · Monorepo

- **PubPay** — shareable payment requests as social posts (no sign-ups, no fees); **PubPay Live** — real-time zap display for live events; **PubPay Multi Live** — multi-stage conference tool with timeline editor, auto-rotation, and rehearsal mode
- Battle-tested at Bitcoin 2025, BCC8333, Adopting Bitcoin

### Chain Duel — Real-Time Multiplayer Bitcoin Game · [chainduel.net](https://chainduel.net)

React · PixiJS · Zustand · WebSockets · Lightning · Nostr

- Custom game engine: PixiJS rendering, Zustand state, keyboard/gamepad input, audio pipeline; payment-gated matches via MarsPay
- Live Lightning Network demo at Bitcoin conferences worldwide — 3 years of production conference use

### Homeserver Dashboard — Next.js Admin UI · [github.com/francismars/homeserver-dashboard](https://github.com/francismars/homeserver-dashboard)

Next.js · Tailwind · shadcn/ui · Docker · Tailscale (Pubky engagement)

- User management, WebDAV file browser, API explorer; Docker/Umbrel integration; Tailscale tunnel for closed networks

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## TECH STACK

Frontend	React, Next.js, PixiJS, Zustand, Tailwind, shadcn/ui, React Native
Backend	Node.js, TypeScript, Express, Socket.IO, WebSockets
Payments	Lightning (LNbits, LNURL, NWC), Nostr (NDK), BOLT 11/12
Systems	Rust, Go, Docker, Linux
AI Tooling	Cursor, Claude Code, ChatGPT, Perplexity

**Open Source:** Pubky · Satsigner · Stable Channels · Inurlp (LNbits) · Nigiri Bitcoin · go-elements · tdex-feeder

**Speaking:** Bitcoin Las Vegas · Bitcoin Amsterdam · Plan B Forum · Adopting Bitcoin · Bitcoin Atlantis · BTC Balkans · Satsconf · *and others*

**Education:** M.Sc. Informatics, University of Lisbon (17/20) · B.Sc. Information Technologies, University of Lisbon

**Training:** Chaincode Labs — Bitcoin Protocol (2021) · Lightning Protocol (2022) · Sovereign Engineering Cohort, Madeira (2024)