

Peter Harpending

Portfolio <https://harpending.org/portfolio/>
Git <https://git.harpending.org/pharpend/>
Email peter.harpending@gmail.com
Call/Text +1 541 357 1298
Location Sutherlin, OR

Work Experience

2024-present: Research Lead and Lead Cryptographic Developer, QPQ AG

Rubicon (research project; Erlang/Sophia)

- first-party addressing and authentication scheme for online services requiring no trusted third party
- all data can be stored locally on client machine
- eliminates need for domain name registrars or TLS certificate authorities, consequently also eliminating them as vectors for surveillance, hacking, and abuse

SFP (= Sophia-FATE Playground; Erlang)

- smart contract dev tool written in Erlang
- enables frictionless and fast step-debugging, execution tracing, unit testing, scripting, and orchestration
- enabled Gajumaru decentralized exchange team to rapidly iterate on smart contracts with confidence that no user funds would be lost to contract bugs

QHL WebSockets (= Quick HTTP Library; Erlang)

- implemented WebSocket support in QHL, an Erlang HTTP server library
- enabled QHL projects to send server-to-client push events (e.g. updating a live price display).

2022-2023: Developer, Aeternity Crypto Foundation

erlang-sha3 (Erlang)

- pure Erlang implementation of Keccak (SHA-3) algorithm
- enabled Aeternity's mining client to work on Windows
- deployed in production for years with no bugs discovered yet

Jex (Erlang)

- TypeScript/JavaScript package manager written in Erlang
- designed to avoid all common supply-chain attack vectors:
 - **no client-side build step:** code is delivered as a pre-built tarball with all dependencies included
 - **no automatic, recursive, or remote dependency fetching:** every package must be downloaded and installed manually
- **key concept:** reframe the supply chain crisis from a *trust* problem into a *responsibility* problem

Sidekick (TypeScript)

- TypeScript library for page scripts to communicate with Aeternity wallet browser extension
- enabled users to accept Aeternity payments with 5 function calls; replaced a complicated JS framework with hundreds of NPM dependencies
- built and packaged with Jex to avoid supply chain risk

2019-2022: Math Tutor

Education and Technical Skills

Education B.S. in Mathematics, University of Utah, 2020

Languages Erlang, Sophia, Haskell, TypeScript/JavaScript, Python, L^AT_EX, HTML/CSS