

Daniel Cartwright

Work Experience

2017–Present **Programmer**, *Layer 3 Communications, LLC*.

- I develop and maintain a suite of network security tools in Haskell as part of a small team.
 - **Allsight** - A distributed SIEM. The tool ingests and analyses syslog, and from this analysis it uses rules defined by security experts to detect both single-log and multi-log (correlated) events, on which it alerts. There is a GUI for our security team to configure rules and view collected data. Clients can also use the GUI to view data relevant to them.
 - **Insight** - GUI and alerting system for tracking web searches. This is used by school districts to track web searches of students.
 - **Diamond** - A network performance monitoring system. Uses **SNMP** to gather metrics from network devices (e.g. interface throughput; utilization of CPU, memory, storage, power). The tool is fully concurrent; thousands of hosts can be polled in about 30 seconds total. These metrics are normalized and pushed into **Apache Kafka**. The data is tracked by an alerting tool and sent to InfluxDB/Grafana.
 - **Netcrawl** - Uses **SNMP** and **LLDP** to brute-force the discovery of a network, given only a subnet or set of subnets. The tool collects a variety of useful data about each node in the network, and outputs a summary which can be analysed by human or another tool. The graph of the network can be output as a **GraphViz** dot file.
 - **Lightband** - A GUI tool for ISPs that makes configuring **ONTs** significantly easier.
- Setup and maintained a **Hydra** server for Layer 3 Communication's Haskell projects.

Open Source Programming

2017–Present **Maintainer & Contributor**, *chessai*,

I began writing Haskell in August of 2017, Nix shortly after. Since then, I have contributed to over 200 open source Haskell projects. I actively maintain or co-maintain roughly 100 open source Haskell libraries. I am a member of the **Haskell Core Libraries Committe**, which oversees and maintains the core libraries that make up the Haskell ecosystem. I am a drive-by contributor of the **Glasgow Haskell Compiler**. Listed are a few projects to which I contribute proudly.

- refined: Embedding simple first-order refinement types inside of GHC Haskell. Supports run-time and compile-time refinements.
🔗 | Haskell | 🟢 5195 | 🔴 3622
- streaming: Haskell streaming library.
🔗 | Haskell | 🟢 342 | 🔴 292
- eigen: Haskell bindings to the Eigen C++ linear algebra library. Provides a type-level interface to dimensionality, making many operations statically-verified to be safe.
🔗 | Haskell | 🟢 342341 | 🔴 15327
- nixpkgs: the nixpkgs repo.
🔗 | Nix | 🟢 781 | 🔴 322
- nixos-configs: My NixOS configs.
🔗 | Nix | 🟢 2674 | 🔴 1353