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` | 2781 | 1403

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