

# Daniel Cartwright

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## 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. From the analysed data, the tool uses rules defined by security experts to detect both single-log and multi-log (correlated) events, on which it then alerts. The tool has a frontend through which our security team can configure rules and view collected data. Clients can also use the frontend to view all 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.

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## 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