

# Johnicholas Hines

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## Professional Summary

Polyglot generalist software engineer with over a decade of experience. I hope to use my experience in these diverse settings (embedded/cloud, frontend/backend, SWE/SRE) to support a team in building challenging and impactful software. I believe using more than one programming paradigm can yield a stronger composite software architecture compared to a monolingual, one-size-fits-all approach.

## Experience

Software Engineer, Datadog

August 2020 — December 2022

- Proposed, designed, and implemented an effective solution to eliminate the DDoS risk in the metrics intake pipeline to prevent outages. Specifically, this meant writing a new Kubernetes cron job to mirror the appropriate table from the single-point-of-truth datastore to a blobstore, and a new client-side library to read from the blobstore and perform the necessary API key validation, thereby reducing the read pressure on the single-point-of-truth datastore.
- Performed urgent domain-specific Kafka migrations and automated them using Temporal, to anticipate and avoid outages due to secular growth.
- Used: Go, Bazel, Kubernetes, Terraform, Kafka, Temporal, Git

Senior Software Engineer, Glitch

December 2018 — May 2020

- Prevented and mitigated fork bombs and reflection amplification attacks by designing and implementing anti-abuse tooling. Specifically, writing new ancestry-based and efficient  $O(n)$  DFA-based block-listing features.
- Reduced self-inflicted outages by introducing feature flag rollouts using Optimizely.
- Saved money by converting Glitch from Datadog metrics-based observability to Honeycomb tracing-based observability.
- Proposed and started the Jadelet to React migration in the frontend and trained new hires who completed it.
- Used: JavaScript, TypeScript, Terraform, Docker, Git

Software Engineer, Google

April 2016 — December 2018

- Effectively converted protobufs into other protobufs.
- Successfully maintained several C++ gRPC microservices within Google Maps at five nines of uptime, with thousands of QPS answered, while the underlying APIs were migrating from relational to graph-oriented datastores.
- Introduced and ran the first Mob Programming RPG event at Google.
- Used: C++, Go, Python, Yedalog

Senior Software Engineer, IDEXX

September 2006 — March 2016

- Simplified robot motion control by developing a novel domain-specific HTN planner, a plan-execution domain-specific language, and a pathfinding component for the Catalyst One and, as part of a cross-functional team with mechanical and electrical engineers, retrofit the Catalyst Dx (a veterinary instrument with 4DOF and an Arm processor, ~500 kloc of custom C++) to add support for novel chemistries such as the TT4, a thyroid test.
- Used: C, C++, Lua, Céu, Mercurial

### **Awards and Presentations**

- Presentation at Map Camp 2022 “How to transform your Wardley Map into a Financial Bond Graph”
- Paper at REBLS2015 “Reactive Traversal of Recursive Data Types” with Francisco Sant’Anna and Hisham Muhammad
- IDEXX Technical Achievement Award 2015 for “Catalyst TT4 Software Sequence Development” with Rob Lachapelle and Jesse Faller
- 1st place Startup Weekend Portland Maine 2013 “Goals with Friends” with Joe Stecchi, Alex Lapa, Ben Murphy, Erika Allison, and Mabel Ney
- Two presentations at the Soar Workshop: “Delimited Continuations in Soar” 2012 “Towards Rogue-Soar” 2010

### **Education**

Haverford College

September 2000 — March 2004

- Bachelor of Science in Mathematics
- Completed a thesis on Hindley-Milner type inference for lambda calculus.