

# James Larisch

james@jameslarisch.com | jameslarisch.com | github.com/semaj | Cambridge, MA

Software engineer and web security researcher with over 6 years of professional and academic experience designing and implementing secure networked systems.

## EDUCATION

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<b>Harvard University</b> <i>PhD, Computer Science</i>	Cambridge, MA September 2017 – December 2023
<b>Harvard University</b> <i>MS, Computer Science</i>	Cambridge, MA September 2017 – May 2020
<b>Northeastern University</b> <i>BS, Computer Science</i>	Boston, MA September 2012 – May 2017

## TECHNICAL SKILLS

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**Languages:** Go, Ruby, Rust, C, C++, JavaScript, Java, SQL, Clojure, Haskell, Racket, Prolog, OCaml  
**Technologies:** TLS, DNS, Kafka, Hadoop, Node, Ruby-on-Rails, libuv, Docker, git, Linux, bash, zsh, AWS

## RELEVANT WORK EXPERIENCE

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<b>Cloudflare</b> <i>Research Engineer Intern</i>	Remote June 2021 – August 2022
<ul style="list-style-type: none"><li>Built new DNS system in Go. Details to come in upcoming paper.</li></ul>	
<b>Sonian (now Barracuda Networks)</b> <i>Software Engineer Co-op</i>	Waltham, MA January 2016 – June 2016
<ul style="list-style-type: none"><li>Built the company's first request tracing infrastructure using Clojure.</li></ul>	
<b>Gem.co (now Blockdaemon)</b> <i>Software Engineer Co-op</i>	Los Angeles, CA January 2015 – June 2015
<ul style="list-style-type: none"><li>Built new webhook product in which Bitcoin blockchain events triggered customer HTTP endpoints.</li><li>Forked the Toshi Bitcoin node to send blockchain metadata to the company's API faster than third-party APIs.</li></ul>	
<b>HubSpot</b> <i>Software Engineer Co-op</i>	Cambridge, MA January 2014 – July 2014
<ul style="list-style-type: none"><li>Converted bloated Hadoop event processing pipeline (60–90m) into Kafka pipeline (5–15s).</li><li>Built new traffic simulation tool which prevented major analytics calculation bugs before production deployment.</li></ul>	

## SELECTED PROJECTS

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<b>Hestia Programming Language</b>   <a href="https://hestia-lang.org">hestia-lang.org</a>	Present
<ul style="list-style-type: none"><li>My zero-dependency, dynamically-typed, functional scripting language written in Rust.</li></ul>	
<b>Juice: A New, Stateful Serverless Architecture</b>   <i>Code &amp; paper available upon request</i>	2018 – Present
<ul style="list-style-type: none"><li>Designed a new serverless architecture that snapshots/restores function memory pages between requests.</li><li>Prototype (10K lines of Go/C) uses modified Lua runtime &amp; Linux kernel patch for fast incremental snapshots.</li></ul>	
<b>Catalyst-Chromium</b>   <a href="https://github.com/semaj/catalyst-chromium/tree/catalyst-experimental">github.com/semaj/catalyst-chromium/tree/catalyst-experimental</a>	2018 – 2019
<ul style="list-style-type: none"><li>Added new, fully-functional UDP socket primitive to the JavaScript DOM in Chromium; secured by DTLS.</li></ul>	

## SELECTED FIRST-AUTHOR PUBLICATIONS

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<b>CRLite: A Scalable System for Pushing All TLS Revocations to All Browsers</b> <i>IEEE Symposium on Security &amp; Privacy (Oakland)</i>	2017
<ul style="list-style-type: none"><li>Compresses over 10 million certificates' revocation status into 10MB using a bloom filter cascade.</li><li>Currently deployed in Mozilla Firefox (Nightly).</li></ul>	
<b>Hammurabi: A Framework for Pluggable, Logic-Based X.509 Certificate Validation Policies</b> <i>ACM SIGSAC Conference on Computer &amp; Communications Security (CCS)</i>	2022
<ul style="list-style-type: none"><li>Proposes new TLS PKI architecture where certificate validation is written using Prolog to improve debuggability.</li></ul>	