

Salvatore Guarnieri

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<http://www.sammyg.org>

<https://github.com/salguarnieri> (but most work is internal at Google)

Work Experience

Stripe

January 2025 - Current

Location: Seattle, WA

Role: Software Engineer

I work on the service frameworks team building frameworks, libraries, and tooling to handle service logic so Stripe developers can focus on business logic.

Projects:

- In progress: Set the road map for improving service network configuration and behavior to reduce incidents, reduce tail latency, and improve reliability while also reducing developer toil and unintentional mistakes
- In progress: Break apart the monolithic event processing system to increase reliability and empower teams to move faster and better manage their resource usage.
- Led and executed a standardization of GC behavior across all Ruby services to reduce support burden and roll out best practices to all services by default.
- Overhauled the Java code generation framework developers use when creating new services to make it much more performant, reliable, and supportable.

Google

September 2014 - January 2025

Locations: New York, NY, Seattle, WA

Role: Software Engineer

Gmail EngProd

I worked on the Gmail EngProd team as a tech lead. The team mission was to work on tooling and processes to improve the developer velocity for the Gmail teams.

Kythe

I worked on Kythe, a developer tools system that processes source code to generate and serve a large scale graph that details the relationships in code for very large code bases (e.g. where symbol `foo` is defined, where it is referenced, what type it has, etc.). The data was surfaced in a web UI that was used by nearly every engineer to understand and browse code. It also powered large scale changes, refactoring, migrations, and other bespoke tools.

I led cross-team and cross-org design, consensus building, prioritization, and implementation of features to increase cross reference coverage and ease of using cross reference data in other tools.

I wrote client-facing and backend-facing distributed servers, graph processing, server configs, and design docs. I primarily used Java and Go with Bazel.

Privacy reviewer

Reviewed internal Google systems to validate and improve their privacy practices.

Previous projects:

Android Studio

I worked on the Bazel plugin for Android Studio. I was one of the early developers that helped bridge the Bazel project model and the IntelliJ project model to make the plugin possible.

IBM

January 2011 - August 2014

Location: Hawthorne, NY

Role: Software Engineer

I worked on analyses targeted at improving mobile application development. Specifically, worked on analyses for JavaScript, Android (Java), and Java to detect security and reliability problems. Was technical lead for JavaScript analyses.

Primary Language Used: Java

IBM Research Intern

June 2010 - January 2011

Location: Hawthorne, NY

Role: Software Engineer

I worked with Marco Pistoia on precise JavaScript and Java analyses. During the course of the internship I developed several analyses to detect or prevent security problems in several web languages. One of the analyses I developed was Actarus, which was a precise tainting analysis for JavaScript.

Primary Language Used Java

Microsoft Research Intern

October 2008 - February 2009

Location: Redmond, WA

Role: Software Engineer

I developed Gatekeeper with Ben Livshits, a tool that statically analyzes JavaScript widgets to identify possible security or reliability problems. The tool was aimed at widgets that were present on the live.com web portal. Gatekeeper was designed to execute on a widget after it was submitted but before the widget was listed in a directory of available widgets. Gatekeeper was designed to ensure unreliable widgets would not make it to the directory of downloadable widgets. I was responsible for creating, testing, and improving the tool. I was also partially responsible for the tool's technical report and presentation at meetings and talks.

Primary Language Used: C#

Education

The University of Washington

September 2006 - June 2010

Degree: Masters of Science in Computer Science

Location: Seattle, WA

Area of Research: Program Analysis for Web Languages

The University of Virginia

September 2002 - May 2006

Degree: Bachelor of Science

Location: Charlottesville, VA

Major: Computer Science (Computer Graphics and Computer Security concentration)

Minor: Biomedical Engineering

Selected Publications

Andromeda: Accurate and Scalable Security Analysis of Web Applications

Omer Tripp, Marco Pistoia, Patrick Cousot, Radhia Cousot, Salvatore Guarnieri

FASE 2013

Saving the World Wide Web from Vulnerable JavaScript

Salvatore Guarnieri, Marco Pistoia, Omer Tripp, Julian Dolby, Stephen Teilhet, Ryan Berg

ISSTA 2011

Gatekeeper: Mostly Static Enforcement of Security and Reliability Policies for JavaScript Code

Salvatore Guarnieri, Ben Livshits

USENIX Security 2009

Automatically Hardening Web Applications Using Precise Tainting

Anh Nguyen-Tuong, Salvatore Guarnieri, Doug Greene, Jeffrey Shirley and David Evans

IFIP International Information Security Conference 2005