

# Sean McCullough

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## SUMMARY

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**Staff Software Engineer** with experience working at startups as well as a large publicly-traded company seeks:

- A high-impact individual contributor role in a fast-moving startup, or a highly-autonomous team at a larger company
- Opportunities to lead technical decisions and offer guidance and mentorship in areas where I have experience
- Opportunities to learn new technical skills or apply my existing skills to new problem spaces
- Prefer on-site, in San Francisco Bay Area, but open to remote work as well

## SKILLS

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**Languages:** Go, JavaScript, TypeScript, Python, Java, Protocol Buffers, SQL, HTML, CSS

**Technologies:** gRPC, JSON/REST, Git, Bazel, Web Components, GCP, BigQuery, Docker, Kubernetes, CoLab/Jupyter Notebooks, Sqlite, DuckDB, CockroachDB, Spanner, MySQL, TensorFlow

**Interests:** Developer Productivity, Logging Instrumentation and Analysis, Distributed Tracing, ML Training Data Pipelines, ML Model Inference Serving, Data Analysis and Visualization, Experiment Design, Performance Benchmarking and Analysis, CI/CD Automation

## BOLD SOFTWARE, 2024 – PRESENT

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### Sketch.dev (Bold Software)

San Francisco, California, United States

*Staff Software Engineer*

*September 2024 – Present, Full-time*

- Core engineer for [sketch.dev](#), a hosted, containerized, chat-driven coding agent.
- Helped design and implement the initial architecture and feature set for launch
- Go, Sqlite, LLM inference APIs, sshpiper, git proxy, containers, docker, gvisor
- “Vanilla” Web UI: typescript, web components, tailwind CSS, SSE for realtime updates
- GitHub App integration for agent loop (auth, webhooks, REST API)
- Prometheus metrics, Grafana dashboards
- VSC extension (InlineCompletionProvider), LSP proxy server for early prototypes
- User event logs analysis with sqlite, duckdb, jupyter notebooks
- User community engagement, feedback, and support via Discord and GitHub Discussions

## ROLES AT GOOGLE, 2007 – PRESENT

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### Chrome Browser Engineering Productivity

San Francisco, California, United States

*Senior Software Engineer*

*March 2020 – Present, Full-time*

- Designed and led the development of CABB ([public mirror of repo](#)), a new system for analyzing performance benchmark data collected from Chrome’s CI/CD system.
- Filtering out anomalies that fail to reproduce under controlled conditions has reduced the false positive rate for performance regression alerts by over 50%
- Worked with a statistician to specify how to port a critical R statistical package to native Go, to reduce the number of external dependencies and improve reliability and maintainability of the service.
- Controlled A/B experiment design, statistical hypothesis testing, system design, backend services, Go, Python, R, gRPC, protobuf, k8s, GKE, GCP, Envoy Proxy
- Also made substantial contributions to the Skia.org performance dashboard (frontend and backend) to prepare for a migration from Chrome’s legacy performance dashboard (Go, TypeScript, Web Components, lit-html, CockroachDB).

### Google.org, AI Impact Challenge

San Francisco, California, United States

*Fellow, Senior Software Engineer*

*Dec 2019 – March 2020, Full-time*

- Designed and led development of AI applications to improve student outcomes for Tech-Ed nonprofit and Google.org AI Impact Challenge winner, [TalkingPoints.org](#).
- Created a training data pipeline: automated extraction from MongoDB, transformation into labelable message transcripts stored in GCS/BigQuery, human-labeling process to create training data.

- Used Google Cloud AutoML Text API to create a classifier for user segments
- Instrumented client and server code for online experiments using Google Analytics and Firestore A/B Testing to optimize ranking for in-app feature promotions
- Training data pipelines, ML model training/inference, web app frontend, web app backend, logging instrumentation, Heroku, Node.js, MongoDB, GCP, BigQuery, AutoML, Firebase, Google Analytics

## Chrome Browser Operations

San Francisco, California, United States

Senior Software Engineer

Dec 2014 – Dec 2019, Full-time

- Core team member for launching bugs.chromium.org (spam filter, rate limiting, online schema change support, many user-visible features): AppEngine, Python, MySQL, HTML, CSS, JavaScript
- Tech Lead/Manager for Chrome Operations Frontends team (unified UI library, best practices for dependency management and CI/CD): Web Components, JavaScript, HTML, CSS, NPM, Lerna, WebPack, Karma, Mocha, Chai
- Developed automated functional regression analysis tools for Chrome's CI/CD system: Python, Go, BigQuery, AppEngine, Web Components, JavaScript, HTML, CSS

## Social Analytics (Internal metrics for Google Plus)

Mountain View, California, United States

Software Engineer

2010 – 2014, Full-time

- Visual Element logging for web frontends: added declarative logging support to Soy HTML templates, including static checks for allowed event types and document structure constraints. Wrote client-side "VELogger" library to manage browser event handler lifecycles based on those declarations and also batch and transmit logged events to a centralized log storage service. To aid feature developers with logging instrumentation I also wrote a Chrome extension that highlighted logged elements, events and metadata along with constraint violations (Java, JS, Protobuf, Soy Templates, Closure Compiler, Wiz framework, Chrome Extensions)
- Experiment Metrics Dashboard: Built a UI server (Java/JS/HTML5, Closure Compiler) to render confidence intervals and search metrics by experiment metadata, as well as parts of the map/reduce pipeline that generated the underlying Dremel tables from user session logs (Sawzall, Go, Map/Reduce, protobuf)
- User Metrics: Wrote batch jobs to generate aggregate metrics and dimension Dremel tables from user session logs, including multi-day active user retention (Sawzall, Go, Map/Reduce, protobuf)
- User Sessions: Wrote an interactive dashboard UI for debugging user session event logs (Go, Java, Python, JavaScript, Closure Compiler, HTML5, CSS, Protocol Buffers)
- Various ad-hoc data visualization projects for internal clients, built using D3.js

## Blogger/BlogSpot

Mountain View, California, United States

Software Engineer

2007 – 2010, Full-time

- Helped launch a new version of Blogger's template editor, including retrofits for CSS features that were not supported in older browsers
- Implemented Blogger's OpenID Relying Party support to allow users with any OpenID provider to comment on Blogger blogs
- "Subscribe" sidebar widget for RSS reader links, "Followers" sidebar widget for Blogger's FriendConnect integration
- Java, BigTable, Protocol Buffers, OpenID, FriendConnect, RSS, GWT, HTML5, CSS, JavaScript, Closure Compiler

## ROLES PRIOR TO GOOGLE, 1997 – 2007

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### LargeSmall Systems (OneSpot)

Austin, Texas, United States

Senior Technologist

January 2007 – August 2007 Full-time

- White-label blog aggregation service for arbitrary subjects, custom-branded presentation.
- Ruby on Rails, PostgreSQL, Apache, Mongrel, Linux (CentOS), rake, capistrano, backgroundDRb, script.aculo.us, prototype, cross-browser CSS.

### Pluck, Inc (Demand Media)

Austin, Texas, United States

Senior Developer

2005 – 2007, Full-time

- Designed and developed major parts of SiteLife Reactions and InSite Blogging platforms.
- Multiple client installations including statesmanblogs.com and austin360blogs.com, rmblogs.thestreet.com, Better Homes and Gardens, USA Today.
- Atom API, REST, RSS, C#, ASP.NET, Secure HTTP, SQL Server, Nhibernate, Nunit, Nant, XML, XSL, DB4O, XSLT, Spring.Net, IIS 6.0, MonoRail, NVelocity, Scriptaculous, Prototype, TinyMCE, CSS and DOM scripting.

**Traq Wireless**

Austin, Texas, United States

*Senior Developer**2004 – 2005, Full-time*

- Java/J2EE, JSP, Servlets, iBATIS SQL Maps, Tomcat, JBoss, Oracle 9i/10g, PL/SQL, XML, XSLT, Jakarta Struts, Jakarta Velocity, Fuego Enterprise Workflow Engine, DHTML, JavaScript

**Open Storm Software**

Austin, Texas, United States

*Independent Consultant**2003 – 2004, Full-time*

- Business Process Execution Language (BPEL) 1.1, C#, Windows Forms .NET, Web Services, Schematron, XML Schema, ASP .NET

**AVLabs Development**

Austin, Texas, United States

*Software Engineer**2000 – 2002, Full-time*

- AVLabs Development was an in-house consultancy for AVLabs, a technology incubator and seed-stage venture capital firm associated with Austin Ventures.
- I helped reduce implementation risk for portfolio companies by providing technology expertise in prototype and product development during early stages of company and product evolution.

**WebTaggers, Inc**

Austin, Texas, United States

*Founder, Chief Technology Officer**1998 – 2000, Full-time*

- Established and maintained the technological vision for the company
- Co-wrote the business plan and pitched the idea to investors, raising \$1M seed funding from Austin Ventures and AVLabs
- Licensed core technology to NetPerceptions, of Minneapolis, Minnesota
- Nominated for 2000 Ernst and Young Entrepreneur of the Year, Emerging Growth category
- Granted 6 US patents
- Assisted the transfer of IP to Vignette Corporation, as part winding the company down in 2000 after failing to raise a second round of funding

**Activerse, Inc (Active Paper, CMGI)**

Austin, Texas, United States

*Software Developer**1995 – 1998, Internship to Full-time*

- Designed and implemented core features of the Ding! Peer-to-Peer Instant Messenger, written in Java

**PATENTS**

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[US-7272786](#): Inventor, "Metadata, models, visualization and control"

[US-7860969](#): Inventor, "Method for continuous, frame-specific click-stream recording"

[US-10257294](#): Inventor, "Data processing system program product and method for communicating information related to user activities on electronic sites"

[US-10567527](#): Inventor, "Method for continuous, frame-specific click-stream recording"

[US-9838489](#): Inventor, "Method for click-stream analysis using web directory reverse categorization"

[US-8417738](#): Inventor, "Method for client-side personalization"

**EDUCATION**

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**New Mexico Institute of Mining and Technology**

Socorro, New Mexico, United States

*B.Sc. in Computer Science;**December 1997***HOBBIES**

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I play pool competitively on 8-ball and 9-ball teams in a local league (Golden Gate APA). In 2022 my 8-ball team won the GGAPA world qualifier playoffs, and we went on to compete at the APA World Championship in Las Vegas that year.

I play guitar and bass, and also build/collect analog synthesizer modules.

**REFERENCES**

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References available upon request.