David Souther (/)

Sr Examples Engineer

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Roles & Positions

SDE III - L6 - Senior SDE

2024-12-01

Current

Rust (https://rust-lang.org)
Amazon Web Services (AWS) (https://aws.amazon.com)
TypeScript (https://www.typescriptlang.org/)

AWS Technical Content Experience

Technical Lead for Content Automations. Maintain a build process that provides >50,000 snippets across >5000 examples for 15 core AWS SDK technologies. These snippets and examples are embedded in a range of AWS technical documentation, and are the primary touch point many engineers have with learning AWS SDK programming.

The build process coordinates contributions from dozens of developers and hundreds of writers to ensure accurate examples, that remain up to date with best practices. This is achieved through extensive CI automation, internal and external content treatments, and appropriate dashboards for stakeholder visibility into this central element of AWS technical documentaiton.

IAM Modernization - I lead a multifaceted team providing large-scale code migration for a diverse technical writer organization. The project extracted, verified, and corrected 12,000 IAM policies across 250 technical guides over one quarter. The project reduced labor from an estimated 4,000 hours to a logged 1800 hours, with a framework in place for future migrations requiring substantially larger labor gains.

SDE III - L6 - Senior SDE

2024-01-01

Current

Large Language Models
Amazon Web Services (AWS) (https://aws.amazon.com)
Amazon Bedrock (https://aws.amazon.com/bedrock/)

AWS TCX AI Lab

AI Lab is an org-wide cross-functional group of technologists exploring the application of AI, especially LLMs, to TCX's authoring and educational workflows. AI Lab workshopped many LLM applications, with some entering production, and ran numerous experiments to validate others.

- Code Explainer - Prompt-based tooling for generating explanations of example code, targetted to AWS Learner levels.
- Style Guide Checker - Experiment using prompt engineering to identify and correct style guide issues, both in general grammatical concerns as well as AWS-specific content recommendations.

SDE III - L6 - Senior SDE, Code Examples

2022-09-12

Amazon Web Services

Sr Engineer creating example code and applications using the AWS SDK for Rust (https://github.com/awslabs/aws-sdk-rust) (example repo

(https://github.com/awsdocs/aws-doc-sdk-examples/tree/main/rust_dev_preview)). Primary duties are writing informative code samples for all aspects of the Rust SDK. Longer-term projects develop cross-service scenarios to emphasize SDK utilities across the SDK language and service boundaries. These examples show customers real-world approaches to developing software that combines multiple AWS SDKs.

2024-11-30

Rust (https://rust-lang.org)
Amazon Web Services (AWS) (https://aws.amazon.com)
golang (https://go.dev)
Python (https://www.python.org)
Front End
Technical Writing

Highlights include:

- a REST system (https://github.com/awsdocs/aws-doc-sdk-examples/tree/main/rust_dev_preview/cross_service/rest_ses) using Amazon RDS Data (https://aws.amazon.com/rds/) & Amazon SES (https://aws.amazon.com/ses/)
- a photo asset manager (https://community.aws/posts/cloud-journeys/01-serverless-image-recognition-app) using Amazon S3 (https://aws.amazon.com/s3/) intelligent tiering (https://aws.amazon.com/s3/storage-classes/intelligent-tiering/) storage, Amazon Rekognition (https://aws.amazon.com/rekognition/) image tagging, & Amazon SQS (https://aws.amazon.com/sqs/) notifications.
- Utilized Ailly & Bedrock to develop bespoke human-navigator LLM workflow (https://github.com/DavidSouther/aws-doc-sdk-examples/tree/workflow/sesv2/mailer/workflows/sesv2_weekly_mailer/content) for Code Examples team, speeding development by 20%.

Lead Instructor

Code Fellows

2022-03-10

Lead instructor for [Code 401: Advanced Software Development in Full Stack JavaScript](https://www.codefellows.org/courses/code-401/advanced-software-devel (https://www.codefellows.org/courses/code-401/advanced-software-devel) opment-in-full-stack-JavaScript/).

2023-06-30

JavaScript
TypeScript (https://www.typescriptlang.org/)
HTML & CSS
React (https://react.dev/)
Instructor
Technical Interview Training
Curriculum Development

Educational duties include online classroom instruction, career coaching, curriculum development, and student evaluation. Students consistently ranked my courses at 100 net promoter score, both on weekly survey and course final evaluations. Organized & lead an instructor-wide project revamping the school's white-boarding process. This project rewrote the white-boarding guide, formalized a rubric for grading whiteboards & tech interviews, and revamped problem & training materials for a dozen instructors across four languages. Code Fellows was ranked as a 2023 top coding boot camp (https://fortune.com/education/bootcamps/best-cybersecurity-bootcamps/) by Fortune Education.

L3 - Sr Software Engineer

SpaceX Starlink

2021-07-01

2022-06-06

Rust (https://rust-lang.org)
c++
Kubernetes (https://kubernetes.io)
Python

Responsible Engineer for a global ISP's ground network off-prem cloud tooling, including global data acquisition, Data Center Infrastructure Management (DCIM), automated authentication, and more. Migrated and managed these systems in a variety of VM & Service Mesh settings. RE and Subject Matter Expert for a DDoS detection, alerting, and mitigation system protecting a global ISP's core infrastructure and Xm customers. Responsible Engineer for managing and optimizing cloud spend,

(https://www.python.org) migrating ~30% on prem and reducing overall utilization ~10% while user base grew ~50%.

L5 Sr Software Engineer

2020-07-01

2021-07-31

google-cloud-platform (https://cloud.google.com/)
google-compute-engine (https://cloud.google.com/compute)
GraphQL (https://graphql.org/)
TypeScript (https://www.typescriptlang.org/)
Angular (https://angular.io/)

GCP - Compute Front End

As a tech lead, I set strategic direction for our feature area as well as mentoring and guiding my team in their engineering and career. I Lead a team of 10 (4 direct) migrating cloud management tool from AngularJS to Angular. During the migration, I organized additional feature work to maintain market parity and leadership during the migration.

As a manager, I developed junior and Noogler engineers in Cloud, Angular, and typescript. I successfully promoted an L4 Noogler to L5 in three performance review cycles and an L3 Googler to L4 during the second cycle as manager, and guided an L3 who received an NI through a PIP who was then promoted to L4 two cycles after departure. I achieved this through managing and mentoring junior engineers, writing performance reviews and promotion packets, and coordinating task priority and HR concerns.

L5 Sr Software Engineer

2018-11-01

2020-06-30

TypeScript (https://www.typescriptlang.org/)
Kubernetes (https://kubernetes.io)
Istio (https://istio.io)
Kompose (https://kompose.io/)
Svg
Microservices
Serverless
Graph rendering
Visualization

GCP - Cloud Topology

Cloud Topology allows GCP customers to visualize their large scale deployments in the Cloud ecosystem.

- I created a rich kubernetes visualization, capable of rendering 10k nodes at 60fps and performing hierarchical graph layout in <1s, by writing high-performance graph rendering engine and conducting research with internal and external k8s users.
- I created a graphical data model & visualization to improve situational awareness of k8s cluster communications patterns, measured by early adopters reporting improved cluster deployment actions using Google Kubernetes Engine, achieved through researching and providing actionable details from early adopter teams.
- I Demonstrated and enabled testing kubernetes clusters of 10k nodes by building a large scale kubernetes test bed, making it available and documented for internal teams.

Education

B.S. Mathematics

2007-08-01
2011-05-31

Rocky Mountain College (https://www.rocky.edu/academics/course-catalog/computer-science)

Tutored for three years. Brought a group of math majors together for regular study sessions, helping all of us work through not just our homework, but the big ideas on topics from philosophy to religion to science, and how they fit together with the material we studied.

B.S. Computer Science

2006-08-01
2011-05-31

Rocky Mountain College (https://www.rocky.edu/academics/course-catalog/mathematics)

Earned two Bachelors of Science (Computer Science, Mathematics) in five years. Worked on several software development projects with other

students in the CS department, including tools to help computational biology research students perform genome analysis on Rocky's local computing cluster.

Projects

Ailly (https://github.com/DavidSouther/ailly)

Load your writing. Guide Ailly to your voice. Write your outline. Prompt Ailly to continue to continue the writing. Edit its output, and get even more like that.

Rhymes with Daily.

Ailly's best feature is rapidly itearting on prompt engineering. By keeping your prompts in snippets on the file system, you can make very fine-grained changes to your prompt and immediately see the difference. You can also use all your normal source control tooling to track changes over time - both your changes, and what the LLM does.

Jiffies CSS (https://jefri.github.io/jiffies-css//)

Jiffies CSS is a "postmodern" CSS full-page reset. It uses the most recent 100% pure CSS standards, including layers, native css nesting, and a variable structure to define user and application specific overrides.

nand2tetris/web-ide (https://github.com/nand2tetris/web-ide)

Online web IDE for the nand2tetris (https://www.nand2tetris.org/) computer architecture & language course.

DavidSouther/software_craftsmanship (https://github.com/DavidSouther/software_craftsmanship)

Software Craftsmanship for the Lay Person is an introduction project based book for a first exposure to programming. The main text is language agnostic, while the three workbooks have project-specific instruction in Python, typescript, and Rust.

DavidSouther/Montana-News-Archive (https://github.com/DavidSouther/Montana-News-Archive)

Montana News Archive is a long-term archival and search tool for local broadcasting companies. This project has been used by a number of Montana and regional news networks to include historical archival footage in their broadcasts.

Publications

Cloud Journeys: Building a Serverless Image Recognition Website with Machine Learning (https://community.aws/posts/cloud-journeys/01-serverless-image-recognition-app) *2023-06-23*

The Code Examples team tells the story of how they created a serverless application that detects labels for images and lets the user download those images by label. This is the first entry in a new content category called Cloud Journeys.

Technical Whiteboarding (https://codefellows.github.io/common_curriculum/challenges/code/whiteboarding) *2023-04-01*

A series of posts on how to approach technical whiteboarding. Technical whiteboarding is often encountered in an interview setting, but the techniques to solve an interview question apply equally well to a wide range of design and development scenarios. This several-part series presents a checklist of steps to work through a technical problem, shows a variety of ways to diagram programs, and has an extensive glossary of data structures & algorithms topics. A section on the "Forward/Backward Method" applies mathematical proof techniques to have a systematic approach to DS&A problem solving.

Visualization by Organizing Connections in Collapsible Hierarchical Graphs (https://www.tdcommons.org/dpubs_series/2996/) *2019-06-01*

Abstract Network graphs in certain applications, e.g., cloud-network graphs, have connections in multiple dimensions. At present, it is difficult or inconvenient for a user to visualize such graphs at varying levels of granularity or hierarchy. Per the techniques of this disclosure, a hull is defined as a node with descendants, and a segment is defined as a bundle of edges between descendants below a pair of nodes. By enabling a user to expand or collapse a hull, and by routing edges via segments connecting parent nodes, the described techniques enable a high-level visualization of large graph networks that can be quickly refocused into low-level pictures.

Is stat() an expensive system call? (https://stackoverflow.com/questions/17149668/is-stat-an-expensive-system-call/17149924#17149924) *2013-06-01*

Format Date time in AngularJS (https://stackoverflow.com/questions/12920892/format-date-time-in-angularjs/12921096#12921096) *2012-10-01*