

# JASON BAK

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## EXPERIENCE

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### HubSpot | Senior Software Engineer - [Infra Costs](#)

Jan '23 - Jan '25

Worked within Platform Infrastructure, focusing on building AWS cost optimization and efficiency systems.

Achieved significant cost savings across an organization with **\$210MM** in annual cloud spend.

- Built improvements to a [Spark](#) data pipeline, enhancing granularity and accuracy of internal cost data for precise **attribution of \$56MM** in annual spend. Used [Java](#), [Athena](#), [S3](#), [SQS](#), [EventBridge](#), and [Snowflake](#).
- Drove enhancements to increase automation and expand scope of an AWS resource optimization system, leading to an additional **\$1MM in savings**. Used [Java](#), [AWS SDKs](#), [MySQL](#), [Slack SDK](#), [Grafana](#), and [PromQL](#).
- Collaborated directly with infrastructure and product teams to resolve their cost management issues (waste, inefficiency, runaway costs, "unexplained" costs), **reducing costs by >\$2MM**.

### Software Engineer - [Infra Costs](#)

Apr '20 - Dec '22

· Designed and implemented an automated AWS resource optimization system that **eliminated >\$1MM in accrued waste** using multiple [AWS SDKs](#), [Java](#), and [Slack SDK](#).

· Attained **>99% AWS resource cost coverage** by architecting enterprise cost tag management system across top-costing resource types. This is the basis of our cost dataset + alerting and optimization systems.

· Scoped and architected a cost alerting system as for a co-op engineer, providing hands-on technical guidance. System has **prevented >\$1MM in runaway costs**. Used [Java](#), [MySQL](#), [AWS SDKs](#), and [Slack SDK](#).

· Architected and built a centralized AWS resource metadata service to standardize data retrieval, eliminating redundant code paths and reducing system maintenance complexity using [Java](#), [MySQL](#), and [AWS SDKs](#).

### Intuit | Software Engineer Intern - [Data Platform](#)

Jun '19 - Aug '19

· Automated AMI rotations for an internal data infra console, reducing manual ops and ensuring compliance with company's 30-day rotation policy, working full-stack with [Java/Spring Boot](#), [React/Redux](#), and [RDS](#).

### Amazon | Software Development Engineer Intern - [AI Algorithms](#)

Jun '18 - Aug '18

· Enhanced anomaly detection by implementing a memory-optimized feature for the Random Cut Forest [C++](#) algorithm library to capture temporal context in time-series data through efficient buffer management.

· Developed [Python](#) and [Java](#) bindings for [C++](#) libraries using [pybind11](#) and [JNI](#), enabling cross-language interoperability through efficient data structure translation between [C++](#) and high-level languages.

## PROJECTS

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### Analysis of my personal journal

· Analyzed four years of personal journal entries (~300k words) using [NLP](#) libraries ([NLTK](#), [TextBlob](#)) to uncover mood trends and [RNNs](#) to replicate writing style, identifying trends linked to greater happiness.

### Knowledge graph of the 2017 political landscape

Won overall 2nd place (\$1024) at HopHacks Spring '17

· Built a full-stack interactive knowledge graph using [Python/Flask](#), [Kafka](#), [Spark](#), [ElasticSearch](#), [NLTK](#), [Neo4j](#), and [Angular2](#) to uncover hidden relationships between influential figures using a stream of NYT articles.

## EDUCATION

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### Carnegie Mellon University | B.S. in Statistics and Machine Learning

Dec '19

Minor in Computer Science

[TA](#): Intro to Machine Learning, Data Structures (2x); [RA](#): Institute for Software Research (Machine Learning)

## SKILLS

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**Proficient** Java, Spark, SQL, Maven, AWS (EC2, Athena, SQS, EventBridge, S3), PromQL, Grafana, Git

**Familiar** Python, C, C++, C#, R, React, Kafka, ElasticSearch, Flask, Angular2, JavaScript, HTML/CSS

## HOBBIES

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· hot yoga, tennis, road cycling, long-distance running, snapshot/adventure photography