

# 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, managing \$210MM in annual cloud spend. Achieved significant cost savings across the organization.

- Led initiatives to enhance internal cost dataset, resulting in improved data granularity and accuracy that enabled precise **attribution of \$56MM** in annual costs across the organization.
- Drove improvements for our AWS resource optimization system to include more resource types and implemented automated cleanup, resulting in an additional **\$1MM reduction** in infrastructure costs.
- Collaborated across infrastructure and product teams to address cost management issues (waste, inefficiency, runaway costs, "unexplained" costs), improving cost awareness and **reducing >\$2MM of costs**.

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

Apr '20 - Dec '22

- Led design and implementation of an automated AWS resource optimization system that **eliminated >\$1MM** in infrastructure costs by shutting down unused resources & adjusting capacity for underutilized resources.
- 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 cost alerting system as mentorship project for co-op engineer, providing technical guidance and timeline planning. System has **prevented >\$1MM in runaway costs**.
- Architected and built a centralized EC2 metadata service to standardize instance data retrieval, eliminating redundant code paths and reducing system maintenance complexity.

### 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 350+ pages of personal journal entries spanning four years using [NLP](#) libraries ([NLTK](#), [TextBlob](#)) to uncover mood trends and [RNNs](#) to generate synthetic text, 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), 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