

Ryan Kemper

Education

2014–2018 **Computer Science**, *UC Santa Barbara - College of Engineering*.
BS

Recent Experience

- May **Site Reliability Engineer**, *Invoca*, Santa Barbara.
- 2019–Present
- Revamped our logging Elasticsearch cluster configuration, taking us from an unstable, over-sharded configuration to a performant and stable daily index model
 - New configuration indexed **1.3 billion** documents per day while reducing total cost on the order of tens of thousands of dollars per year
 - Cluster went from experiencing "red cluster status" (data loss) every hour to **no further production events** in over 7 months
 - Lead the response to production incidents while maintaining composure
 - As part of a 24/7 on-call rotation, performed triage and incident response for our Kubernetes/chef managed infrastructure as well as our **ruby-on-rails** application and associated python microservices.
 - Advocated for our customers, pushing us to proactively notify about impacting events
 - Worked with others to perform **root cause analysis** and blameless post-mortems, identifying and driving improvements to prevent future incidents
 - Used the **reactor design pattern** implemented through EventMachine to write **performant, concurrent Ruby code**.
 - Service discovery and production secret management via Hashicorp **Consul** and **Vault** respectively
 - Operated production mysql databases, including **database promotions** and troubleshooting **replication** delays/breakage
 - Deployed Falco, a container native runtime security and compliance solution, across all our Kubernetes and Chef-managed nodes
- Jun **Cloud Operations Intern**, *Invoca*, Santa Barbara.
- 2018–March 2019
- Plumbed cloudwatch Elasticsearch and Logstash metrics and constructed information-dense Grafana dashboards
 - Developed and tuned alerts using Graphite-based monitoring stack; writing one-off scripts as necessary to back-test against historical data
 - Wrote consistently **high quality documentation** containing detailed runbooks and high level conceptual explanation of critical infrastructure like Elasticsearch
 - Merged a patch (extended functionality) to the open-source static code analysis tool Brakeman, working to optimize **Docker caching layers** and create a new Dockerfile for easy usage in a CI pipeline => <https://github.com/presidentbeef/brakeman/pull/1252>
 - Wrote a module for onboarding laptop script which idempotently guided the user through setting up a password-protected 4096-bit RSA ssh key to enforce a standard of security excellence
 - Wrote a module for developer bash profile which automatically displays current Kubernetes context and namespace to ease common UX difficulties in using Kubernetes

Fall–Winter 2018 **UCSB CS Capstone team member - 1st place, LogMeIn (sponsor), Goleta.**
Developed proprietary software that uses machine learning to offer targeted feedback for public speaking:

- Implemented **natural language processing** techniques like TF-IDF to identify keywords
 - Used nltk brown corpus to extract english term frequency and inverse document frequency data
 - Wrote Python scripts to extract thesaurus data and corpus word frequencies;
- Maintained 3 backend modules (text/audio/video):
 - Wrote **shell** scripts using sed/awk to integrate backend and frontend repositories;
- Used parallelization to speed up backend, reducing processing time 2-3x:
 - **Multithreading** to parallelize API calls to Google Cloud Vision and IBM Watson
 - **Multiprocessing** for cpu-bound tasks like OpenCV haarcascades, ffmpeg mp4 conversion
- Wrote decision tree logic to convert raw analysis results into plain english feedback for user

Primary Languages

Python 3	Advanced	<i>Preferred language for machine learning, scientific computing</i>
Ruby	Advanced	<i>Preferred language for scripting/general computing, metaprogramming</i>
Java	Intermediate+	<i>Often read Java source for projects like Apache Lucene, Apache Kafka, Elasticsearch, etc</i>
Go	Beginner	<i>Mainly poking around in Kubernetes / Vault / Terraform source code</i>

Core Skills

Git	add, commit, push, feature branching, stashing, tagged commits, remotes, reflog, rebase	Scripting	regexes, safe file handling, multiprocessing, JSON/csv/other common data output formats
Security	SQLI, CSRF, XSS, privilege escalation, buffer overflows / shell-code injection via env vars	Cryptography	secure hash functions (like the sha-2 family), salting, asymmetric key encryption (like gnupg)
Linux	Extensive production experience operating linux instances at scale, primarily Debian/Ubuntu/BusyBox	Concurrency	Synchronization primitives such as mutexes (locks), semaphores, wait/join, thread vs process

Public Speaking

(Link) [Pitching an idea to college students @ Capstone UCSB](#)