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Keith R. Petersen

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Summary

Experienced software engineer with interests in Python, infrastructure as code, and distributed systems. I care about simplicity, automation, resiliency, and reliability. I enjoy automating processes to increase the efficiency of others.

Languages and Technologies

- Languages: Python, JavaScript/TypeScript, HCL, SQL
- Technologies: AWS, Terraform, Docker, k8s, Flask, React, Postgres, GitHub Actions, Jenkins
- Other: 12-factor app and CI/CD principles, automated testing

Experience

Sabbatical *Jun 2022 – present*

- Taking time off to build projects with Python and AWS
- Created project showing how to run the latest versions of Python in AWS Lambda
- Created project demonstrating use of GitHub Actions, Terraform, FastAPI on AWS Lambda

Production Engineer **Very Good Security** *May 2021 – May 2022*

- Handled production issues with logs, metrics, and transferring multi-GB files with Airflow
- Wrote Python code to increase reliability of large file processing
- Migrated over 30 apps and services from unsupported k8s / EKS versions to latest
- Standardized Helm charts with annotations
- Used Terraform with Terragrunt to manage AWS resources
- Configured logging and metrics with fluentd / fluentbit and Grafana, Prometheus / Cortex
- Updated, tested and deployed over 20 Docker base images
- Closed over 40 open security tickets that had been backlogged for months, modified IAM roles

Senior SRE **Lean TECHniques** *Jan 2021 – May 2021*

- Responsible for monitoring and observability across distributed systems that process machine and agronomic data at John Deere ISG
- Set up Grafana and Prometheus metrics for Java / Scala services on Amazon ECS
- Taught 3 other team members how to use Terraform to manage AWS resources

Sr. Software Engineer **Lean TECHniques** *Feb 2019 – Dec 2020*

- Worked on a distributed system for John Deere ISG that sends machine alerts and other notifications to dealers and customers worldwide
- Improved the admin UI so dealers could manage multiple machines and techs per customer
- Replaced a bunch of high-maintenance Python / Node.js scripts with Terraform
- Technologies:
  AWS: SQS, SNS, S3, Kinesis, EC2, ECS / Fargate, Lambda, RDS / Aurora, Beanstalk
  App: Postgres, Scala, Java, and Node.js / TypeScript / React
  Monitoring: Cloudwatch, ELK stack
  CI/CD: GitHub, Jenkins, Drone.io, Docker, Terraform, CloudFormation, bash and Python

Sr. Software Engineer **Granular** *Sep 2016 – Jan 2019*

- Took the initiative to track down all unhandled exceptions in the nitrogen app backend. Triaged, prioritized, and helped fix them, for which I was recognized with an MVP cash award at the July 2018 all-hands meeting
- Built a feature flags SaaS app using Python, Flask, Terraform, Docker, Kubernetes, DynamoDB, and other AWS services. Distributed across multiple AWS regions, used by all Encirca apps
- Maintained and enhanced NSIM, a SaaS distributed system for running nitrogen simulations using AWS EC2 Spot Fleet, Lambda, Step Functions, CloudFormation, S3

Sr. Software Developer **DuPont Pioneer** *2015 – 2016*

- Developed tools to manage vast amounts of plant breeding data. Used Angular.js and the NPM toolchain, C#, ASP.Net Web API, and Entity Framework. Maintained legacy WPF apps.

Software Developer **DuPont Pioneer** *2013 – 2015*

- Wrote new “fencepost” marker selection algorithm for soybean researchers
- Developed new WPF application for managing soybean Trait Integration projects

Automation Test Developer **DuPont Pioneer** *2012 – 2013*

- Wrote automated regression testing code for field research software apps

Associate Web Developer **Polk County Government** *2008 – 2012*

- Full stack web development with C# / .net framework

Education

B.A., Central College, Pella, Iowa, *magna cum laude* *2006*
Major: English; Minor: Philosophy

Volunteer Experience

JUMP (Johnston Youth Mentoring Program) *2015 – present*

- I spend about an hour a week with a student, playing board games, sports, cooking, etc. The purpose is to be a positive male role model and another caring adult in the student's life, but a little bit more like a friend than an authority figure.

dsm Hack *2020*

- I was part of a team that made improvements to the Des Moines Heritage Trust web sites, photo albums, and information management.

City of Johnston Tree Board *2017 – present*

- Assist with city tree selection and annual public tree sale, advise on public trees