

# Harrison Totty

SENIOR PLATFORM ENGINEER · SECURITY AUTOMATION

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## Summary

Senior Platform Engineer for the Security Automation team at Grainger. Principal Software Architect at Alpha-1 Aerospace. Experienced software engineer with a diverse background in computational physics, data science, and systems engineering.

## Work Experience

### W. W. Grainger, Inc.

Remote

SENIOR PLATFORM ENGINEER (SECURITY AUTOMATION)

Jan 2024 - Present

- Architected security-focused data products with Streamlit.
- Developed REST APIs for incorporating business logic in automation involving SAST and secrets management.
- Active member of multiple Grainger event committees (hackathon, CKAD SME, technology conference).
- Standardized adoption of multiple Python development best practices.

### Alpha-1 Aerospace

Remote

PRINCIPAL SOFTWARE ARCHITECT

Jun 2023 - Present

- Lead developer on Qt-based GIS project for DOD clients.
- Implemented low-level bytecode parser for data from embedded devices.
- Paradigms include interactive simulation, 3D modeling and visualization, and translation between various coordinate systems.

### Basis Technologies (Formerly Centro, Inc.)

Remote

SENIOR DEVOPS ENGINEER

Feb 2021 - Dec 2023




- Spearheaded company adoption of Kubernetes (EKS).
- Wrote terraform code for managing infrastructure hosted in AWS.
- Architected networking and external secrets implementation for Kubernetes.
- Authored ISO-style technical standards documents and department blog posts.
- Implemented serverless data pipelines using AWS Lambda & Step Functions.

### Wolfram Research, Inc.

Champaign, IL

DEVOPS ENGINEER

Apr 2018 - Feb 2021

- Streamlined disaster recovery of Wolfram Cloud user data with end-to-end encrypted backups via  backuputil.
- Provisioned bare-metal Kubernetes environments for Wolfram|Alpha utilizing Kubespray, Helm, Rook-Ceph, and Velero.
- Incorporated Hashicorp Vault for secrets management of Kubernetes CI/CD pipelines.
- Implemented infrastructure as code (IaC) standards for on-premises environments by leveraging  Puppet and  Cobbler.

## Skills

<b>AWS</b>	ALB/ELB/NLB, Cloud Formation, EC2, EKS, IAM, Lambda, RDS, Step Functions, Secrets Manager
<b>Kubernetes</b>	Crossplane, ESO, Helm, Kyverno, Velero
<b>Data Analysis</b>	Jupyter Lab/Notebooks, Mathematica, Pandas, plotly, Snowflake, Streamlit
<b>Security Automation</b>	Snyk, Hashicorp Vault
<b>IaC</b>	Puppet, Saltstack, Hashicorp Terraform
<b>Programming Languages</b>	JavaScript, Python, Rust, Shell Languages

## Projects

### Quantum-Optimized Machine Learning of Boolean Networks

W. W. Grainger, Inc.

A SCIENTIFIC INQUIRY AND ACCOMPANYING PYTHON LIBRARY

Dec 2024

- Personal submission to the 2024 Grainger Hackathon.
- Extension of earlier research project under Stephen Wolfram.
- Leverages QuEra's Aquila neutral-atom quantum computer through Amazon Braket.
- Implements translation of boolean circuits to atomic lattice configuration.