Thomas Shanks

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RECENT SKILLS

Python, Ruby, Groovy, C, etc

System & functional test automation

Automated triage & classification of system and feature test failures

L2 & L3 switch functional & performance testing

IPv6 functional testing, including:
  SLAAC (RA / RS / DAD)
  IPv6 address resolution (NA / NS)
  IPv6 Multicast (incl special groups)
  LLDP/CDP (incl with/over VLANs)

TCP/IP software performance testing

Functional and performance testing of REST APIs

Testing & bring-up of hardware:
  Ethernet switch hardware
  Embedded Linux systems
  Microcontrollers, FPGAS, PLDs
  Embedded devices & flash w/ I2C, SPI

Automated SerDes parameter tuning

Manufacturing diagnostics

VHDL, Verilog

Ruby test framework:
  Minitest (and Meraki's internal derivative, Bigtest)

Python test frameworks:
  Pytest, Bigtest, Green, Nose
  Python's unittest (mock, patch)

Test infrastructure:
  Jenkins w/ Kubernetes agents

CI/CD (Continuous Integr. & Delivery)

Infrastructure as Code (IaC) /
Cloud orchestration:
  AWS CloudFormation Templates
  Docker builds / Dockerfiles, Helm
  Terraform for AWS, Kubernetes
  Kubernetes config & deployment

Amazon Web Services (AWS):
  EC2, EBS, S3, RDS, Aurora, Dynamo, CloudFormation, IAM, STS, etc
  boto3 (Official AWS SDK for Python)

VMware vCenter/vSphere/ESXi & VMware Cloud for AWS
  pyVmomi (vSphere SDK for Python)
  vSphere Automation REST API & SDK

Linux/POSIX systems code debugging and optimization

EXPERIENCE

Fungible @ Microsoft, Santa Clara, CA — *DPU Infrastructure Engineer (Contractor through HCLTech US)*

2024 - Current

- Developing QA CI/CD infrastructure that allows Data Processing Unit (DPU) engineers to build and test their code on emulators and pre-production silicon/systems. Keeping Build & QA infrastructure and machine fleets running while continuously improving reliability and reducing maintenance burden.
- Working with engineering teams to identify future requirements for infrastructure, machines, and test frameworks. Developing test-related tooling, frameworks, and automation that improve developer productivity; driving improvements in test methodologies and processes.

Cisco Meraki, San Francisco, CA — *Senior Software QA Engineer, Firmware Test Automation*

2021 - 2023

- Triaged regression test failures; automated replication of intermittent / rare issues; documented & assisted with root-cause identification for complex / hard-to-reproduce bugs
- Coordinated cross-team efforts to maintain and improve a shared test framework code base
- Verified reliability and security of new features; reported critical security issues in unreleased features
- Helped specify design of new features in firmware; worked with devs to overcome fundamental flaws in feature design

Clumio, Santa Clara, CA — *Senior Software Engineer (QA/Automation)*

2018 - 2021

- Planned and developed Clumio's automated testing infrastructure, test/deployment automation libraries, and end-to-end system/performance testing and test methodology from the ground up beginning when the company was less than a year old

- Planned and implemented system, performance, and scalability tests for the product's use with customers' AWS, VMware Cloud on AWS (VMC), and VMware vSphere/vCenter environments
- Collaborated with devs on new features starting during their initial design and specification phase to ensure reliability and testability, as well as providing feedback on design and usability of the product's REST APIs
- Provided technical leadership and direction for the team's continued improvements to the automation libraries and infrastructure and for the planning and development of end-to-end system and performance / scalability tests for new data sources and product features

Rubrik, Palo Alto, CA — *Software Engineer*

2017 - 2018

- Maintained and improved homegrown automated software testing platform and libraries
- Designed and implemented automated deployment / orchestration of the product in AWS and vSphere/vCenter environments, and automated the creation and maintenance of test infrastructure and testbeds for both
- Developed AES encryption of configuration metadata in product

Avi Networks, Santa Clara, CA — *Member of Technical Staff*

2015 - 2017

- Developed and maintained test libraries for Application Delivery Controller product
- Wrote AWS, Mesos/Marathon, & DC/OS cloud orchestration support in test infrastructure; assisted with implementation in product itself
- Maintained and improved infrastructure for automated testing

Arista Networks, Santa Clara, CA — *Platform Engineer*

2013 - 2015

- Wrote manufacturing diagnostics for and performed bring-up of 10/40/100 Gbps ethernet switches based on Broadcom StrataXGS series
- Supported production line verification of #1 selling product
- Trained and supported contract manufacturing staff in testing and debugging of new product in overseas factory during initial roll-out

EDUCATION

Masters in Computer Science
Georgia Institute of Technology (Georgia Tech), Atlanta, GA

2013   GPA 3.79/4.00

with Graduate Certificate in Information Assurance (InfoSec)

Bachelors in Computer Science,
Bachelors in Electrical Engineering
Georgia Institute of Technology (Georgia Tech), Atlanta, GA

with High Honors

PROJECTS

CoPiCo Project (Open Source) — *Project Founder / Hardware & Firmware Engineer*

2024 - Current

- Independently creating the CoPiCo device, a WiFi (and network boot) cartridge for a vintage 8-bit computer platform, the Tandy Color Computer (released Sept 1980)
- CoPiCo places the Raspberry Pi Pico W (RP2040 ARM microcontroller + Infineon AIROC WiFi/BT) directly on the Color Computer's main data bus, allowing it to provide a network connection while also acting as a ROM cartridge that the system can boot from
- Currently designing the PCB and writing the RP2040 firmware based on breadboard prototype

BenzPay — 1st Place, *Mercedes Benz #HackWithTheBest Hackathon*
2015

- Designed & implemented on-map shopping w/ Nokia HERE Maps API
- Implemented location-based single click Bitcoin payment
- Interfaced with car's serial input hardware
- Learned Node.js in a day; developed initial prototype in a weekend
- Finalists judged by Daimler AG CEO and senior management
- Won first place; awarded a Mercedes car