

GANESH KATHIRESAN

Senior Software Engineer

@ ganesh3597@gmail.com

in ganesh-kathiresan

G ganesh-k13

🐦 ganesh_ka13

M ganeshkathiresan

EXPERIENCE

Amazon | Whole Foods Market Senior Software Engineer (L6)

📅 April 2024 – Ongoing 📍 Bangalore, KA

- Led automation of WAN circuit management processes, previously handled by third-party vendors, resulting in annual cost savings of approximately \$3 million for Whole Foods Market. Developed systems to automate circuit lifecycle operations including provisioning, modification, and decommissioning, along with automated reporting workflows.
- Designed and implemented a secure, scalable integration between the Amazon Corporate Network Fabric and the Whole Foods Network Fabric. This eliminated the need for multiple VPN tunnels, reduced operational complexity, and cut infrastructure costs by leveraging native Amazon resources over WFM-hosted compute or authentication systems.

Amazon Web Services Software Development Engineer 2 (L5)

📅 December 2021 – March 2024 📍 Bangalore, KA

- Designed and developed a Zero-Touch network configuration deployment system for every Amazon and third-party physical store across the globe. Eliminated manual effort of about 1700 engineering hours per AWS Region per month for our customers (Network Operations and Stores Tech Launch teams)
- Built a generic Flask-based micro-service template package to bring up a Fargate-managed ECS service through CDK effortlessly. The framework supports CDK-based infrastructure with built-in authentication and authorization (Midway/SigV4), Cloudwatch-based alarms, and clients for popular AWS services such as S3, MemoryDB, DynamoDB, and Cloudwatch. It saves about one month of engineering time to bring up a new service in Python.
- Wrote various automation scripts at the request of our customers (Network Operations) to simplify repetitive tasks. This includes a configuration diff/drift detection tool that creates an inventory of 1000+ devices and computes the presence of dangerous drifts and is used widely in production today as part of regular operations. Other notable scripts include automated SSD firmware updates to network devices and bootstrap configuration updates.
- As a team on-call member, I helped mitigate issues in live deployments. Took part in Large Scale Events (LSE) calls to help put out fires in services that have direct customer impact. Improved the team on-call experience by deep diving into repeated issues, finding the root cause, and automating preventive measures.

Citrix Systems Software Engineer

📅 July 2019 – December 2021 📍 Bangalore, KA

- Designed and developed [Citrix WAF Recommendation Engine \(CWRE\)](#) that detects technologies and vulnerabilities in the backend service to recommend Security configurations and Signatures for protection against known CVEs. Helps customers automate the process of configuring complex firewall rules leading to increased security. Responsible for the thread management module that increased efficiency by 60%. Built data engine for IPC using ZMQ which enabled developers to modularize into sub-processes.

OPEN SOURCE

NumPy Core Developer and Maintainer

Core Team | Contributions

- [bit_count](#) ([popcount](#)) to optimally count the number of 1-bits in an integer, a widely requested feature
- Developed dispatch logic for integer division using Universal SIMD Intrinsic to improve efficiency by over 90%
- Author of [show_runtime](#) and [show_config](#) and to help users provide meaningful system information when filing bugs and actively used on every issue filled.
- Revamped the NumPy build system with various contributions to [Meson](#) migration and new commands to the upstream build package [spin](#) used by 20+ packages in the scientific Python community
- [hex](#) and [fromhex](#) implementation for all floating-point types

OpenCV Contributor

Contributions

- Added support for determining the number of CPUs in the host machine more accurately for various platforms which improve the functionality of parallel modules
- Added greyscale flags and JPEG resize support for [imdecode](#), helping users to avoid performing multiple transformations
- Fixed crash grade issues and added UT for image codecs and Calib3d modules to help developers catch regressions

Python/CPython Contributor

Contributions

- Redefined [PY_SSIZE_T_MAX](#) and [PY_SSIZE_T_MIN](#) to make it usable in preprocessor conditionals

SKILLS

Languages

C C++ Python Java Typescript

Technologies

AWS Docker Kubernetes PostgreSQL
SQLite MongoDB DynamoDB Git
ECS Fargate Redis EC2 SNS

- Built a framework in Citrix Ingress Controller (CIC) to configure NetScaler WAF in a Kubernetes deployment. Received positive reception from customers for ease of use and helped drive many sales. [GitHub Link](#)
- Built a pipeline to automate the process of producing new weekly signatures for Citrix WAF which saves about 4 hours of engineering time per release and bridged over 8 weeks gap in the signature release cycle to make Citrix WAF highly competitive due to shorter release periodicity.

 **Citrix Systems**
Software Engineering Intern

 July 2019 – December 2021  Bangalore, KA

- Built a framework for Citrix Ingress Controller to configure NetScaler as an Ingress using Custom Resource Definitions. Selected for Citrix Tech Fair 2019. Helped in the design of various CIC CRDs and core infrastructure of config management modules.

PUBLICATIONS

[Google Scholar Profile \(28 citations\)](#)

Journal Articles

- L. Jain, H. Vardhan, **G. Kathiresan**, and A. Narayan, "Optimizing people sourcing through semantic matching of job description documents and candidate profile using improved topic modelling techniques," *Advances in Intelligent Systems and Computing*, vol. 1133, pp. 899–908, 2021.
- A. Vinay, D. A. Mundroy, **G. Kathiresan**, U. Sridhar, K. B. Murthy, and S. Natarajan, "Dominant feature based convolutional neural network for faces in videos," pp. 17–22, 2017.
- A. Vinay et al., "Face recognition using filtered eoh-sift," *Procedia Computer Science*, vol. 79, pp. 543–552, 2016.

Patents

- P. Bagaria, K. VELUGU, T. Thangamani, and **G. Kathiresan**, *Client-server session based anomalous behavior detection*, Nov. 2022.
- K. VELUGU, **G. Kathiresan**, P. Bagaria, and T. Thangamani, *Automatically generating firewall configuration profiles using learning mode*, Nov. 2022.
- K. VELUGU, **G. Kathiresan**, P. Bagaria, and T. Thangamani, *Dynamically selecting firewall signatures using network traffic*, Nov. 2022.
- K. VELUGU, **G. Kathiresan**, P. Bagaria, and T. Thangamani, *Systems and methods for graphical visualization of web application vulnerabilities*, Nov. 2022.

SQS

S3

Route53

QuickSight/Quick Suite

EDUCATION

B.Tech. in Computer Science

PES University, GPA: 9.20

 2015 – 2019

HONORS AND AWARDS

- Received Citrix Quality Award Q3 2019 for developing WAF Signature Auto Update Tool
- Received Spot Bonus in Q3 2020 for performance
- Won the Citrix Graduate Induction 2019 Tech Project for developing Mock API as a Service
- Received PESU's Dr. CNR Rao Merit Award scholarship for being in the top 20% of CS department.
- Finalist (top 10) in Hackerrank's #UnitedByHCL International Hackathon-2017 out of 14000+ participants globally for a project on AI-based content ranking algorithm for Ubisoft SA, held at Old Trafford, Manchester, UK
- AI-based content ranking algorithm for Ubisoft SA, held at Old Trafford, Manchester, UK
- Received National Talent Search Examination (NTSE) Scholarship by the Govt. Of Karnataka (rank 29)

PROJECTS

Project repositories

- Online Judge Platform (Final year B.Tech Project)
- DDOS analysis
- Multi-Channel Image Steganography
- Predictive Text (Autocomplete with Markov chains)
- Music Modifier (Auto MP3 metadata modifier)
- Implementation of: Btrees, Big Integer Library C++, Shell, Suffix Tree, Dynamic Table.