Amit Kumar

India | amitkumarhere@outlook.com | linkedin.com/ak25

Architect C++14,17,Rust,Go,ML Linux,Windows Programmer

Result driven, Customer service enthusiast trained in a high pressure and demanding environment. Professional in problem solving, training, developing teams. Detail oriented with instincts of meeting high expectations. Passionate for technology.

Technical Skills

Languages: C++, C, Rust, Golang, Java, Python, powershell, XML, SAML
Debuggers: gdb, valgrind, ddd. visual studio
Operating System: RedHat, CentOS, Ubuntu, Windows Active Directory 2016-2022, VMWare
Network: LDAP IPv4/IPv6, IGMP, MOSPF,BGP, TCP,UDP, SIP,SDP L2TP,MAC,OSPF, Control,Data plane, REST API, JSON, XML, DPDK, Routing Protocols OSPF, HTTP, HTTPS
Network Security: IPSec,SSL,IKE, PKI,Certificates, AAA(Kerberos, Smart card, Active Directory), Endpoint Detection and Response (EDR), IDS/IDP(SRX), Security Incident and Event Management (SIEM), WAF, DOS, DLP, Data Encryption, Identity and Access Management (IAM)
Build Systems: make, cmake, jenkins
Versioning: git, gerrit, svn, perforce, github, gitlab
Basics: Data Structures & Algorithms, Object Oriented Design, Multithreading, IPC Distributed Systems, Design Patterns
Databases: MySQL, postgres, MongoDB, neoj4, Druid OLAP
Gateways: Cisco ASA, Juniper SRX, palo alto, zscaler
Misc: Machine Learning, Amazon Web Services, Agile, Scrum, Open Source, SDLC
Soft skills: Time Management, TeamPlayer,Leader, Strategy, Customer Obsession
Cloud: VMWare ESXI, Docker, Kubernetes, Ansible, Devops, Terraforms
        Load Balancing: ngnix, haproxy, F5
        Pipelines, Message Bus: Kafka, ZMQ, zookeeper(metadata)
        Observability: Grafanna, Prometheus, Sumologic, datadog, ELK, SignalFX

Personal Projects / Open Source Contributions

C++, Boost
- Cross Platform CMake, Boost. Read csv files find total spending
- OOD/Object Oriented Design
- ThreadPool 64 Pools 4ThreadsPerPool

Rust
- Web Server exposing REST End points tokio, actix_web
- CI/CD as github Action, Read yml file, hash the repo and send to Http Server

Python: RedHat Support Insights Parser for /var/log/samba

SSL/TLS: Server, Client Communication using ssl,crypto libraries

Blockchain: Etherium Blockchain APIs to get Ether balance and all transactions

Machine Learning: Image classification into 10 categories (0 through 9)

Professional Work Experience

Juniper Networks India Pvt Ltd. (Jun 2021 – Till Date) Rust,Go,C++,ML Programmer

- jproxy on SWG(Secure Web Gateway) Cloud
  - jproxy is big service that terminates traffic entering jcloud and inspects the traffic doing DLP(data leak prevention), TSS(Threat prevention), URL filtering etc.
  - Designed, Code on jproxy RBI(Remote browser Isolation) for proxy.
  - Enhanced Policy Management Module on jproxy.
  - Working on separating policy module
- Golang Daemon to collect cpu, gpu usage (windows, linux)
  - main should relaunch itself in background once main exits
  - daemon process should read cpu, gpu usage and log the same in
    linux = /tmp/gpu_usage.txt and /tmp/cpu_usage.txt
    windows = c:/temp/gpu_usage.txt and c:/temp/cpu_usage.txt

    - This should work seamlessly on cross platform on windows and linux.
- JIMS(Juniper Identity Management Service) Developer: Full-Stack & Cloud Expertise & Juniper Secure Edge (SASE)
  - Designed & developed JIMS across on-prem(C++), AWS cloud(Rust), and UI.
  - Implemented efficient multithreaded SRX communication stub in Rust (async/tokio)
  - Established Prometheus metrics scraping for Grafana visualization
  - Integrated Kafka for robust message production and consumption
  - Optimizations in postgres for handing 1.5 millions req/sec
- Azure & Okta client libraries in Golang/Rust for efficient identity information retrieval.
  - Extracted user, group, and device data from Microsoft Azure and Okta directory servers.
  - Streamlined identity management by automating data transfer to JIMS server (cloud-based).
- User anomaly detection using Machine Learning with Active directory data
- Makefile cross compiling using arm toolchain, running compiled build inside docker

AMD India Pvt Ltd. (Jun 2020 – Jul 2021) MTS Embedded Software Developer

- Embedded Systems & Virtualization Expert (C++, Device Drivers)
  - VMWare device driver design & development(using NDDK) to read GPU's egisters, PCI Config Space,Video Memory, port, CPU MSR Registers
- Cross-Platform Tool Development (boost, cmake)
  - Testing on RTOS, ARM processor
- GPU monitoring capabilities for MI300 and MI500 (toollib)
  - Integrating voltage, current, thermal, and fan (vctf) data collection
  - Improved performance monitoring and troubleshooting abilities for these critical GPUs.

Red Hat India Pvt Ltd. (Jul 2016 – Jun 2020) C++, C, Python Programmer

- Redesigned System Security Services Daemon (SSSD) interface to the kernel

- - Optimized LDAP Performance by redesigning the ldaps and ldap interfaces, introducing ldap_nw_timeout for optimized performance and resource utilization
  - Improved [Samba](#) Security
    - Identified and fixed design vulnerabilities in the Samba file server's passdb backend and rpclient, enhancing data security.
  - Automated Insights Processing
    - Developed a Python 3.7 parser for [Red Hat Support Insights,](#) enabling efficient data extraction and analysis for proactive system management.

HCL Technologies(Cisco) (Jul 2014 – Jul 2016) IPSec, VPN C++, Python developer

- [Enhanced Cisco ASA Security](#)
  - Developed features for IKE, ISAKMP, and SSL protocols, strengthening the security posture of Cisco ASA firewalls.
- Reduced reported issues in [Online Certificate Status Protocol (OCSP)](#) by 20%, optimizing network performance and user experience.
- Open Source Contribution ([OpenvSwitch](#))
  - Implemented a "Feature-Request" message functionality in a proof-of-concept, demonstrating initiative and contribution to open-source networking projects.

Samsung (Jul 2012 – Jul 2014) Senior Embedded Software Developer

- Innovation in Hardware Acceleration (80% TPS Increase)
  - Successfully offloaded encryption/decryption tasks to a Cavium Nitrox card, resulting in an impressive 80% improvement in Transactions Per Second (TPS). This achievement eliminated the need for Samsung to purchase SSL hardware from outside.
- Expertise in Embedded Systems & Network Protocols
  - Designed and developed a Smart TV client application in C that utilizes multithreading to efficiently receive audio/visual data over Real-time Transport Protocol (RTP). The application captures the received video stream and displays it on the console, demonstrating proficiency in embedded system development and network communication protocols.
- Hardware Testing & Debugging
  - Actively involved in testing ARM processors on Foxp boards, contributing to comprehensive hardware testing and debugging processes.

Clear2Pay (Dec 2010 – Jul 2012) Senior Software Engineer C++, C, Verifone, Gemalto

- Optimized POS Application Performance ([Token Bucket Algorithm](#))
  - Identified a bottleneck in a Point-of-Sale (POS) application causing packet drops and retransmissions. Implemented the Token Bucket Algorithm to establish rate control and significantly improve application performance.
- Developed Train Control System Message Layer (C)

- ○ Designed and implemented the message layer for a critical train control system. This layer facilitates communication between the central office server (controller) and locomotives, ensuring reliable data exchange for safe and efficient train operation.

Mtree Software Pvt Ltd. (Aug 2008 – dec 2010) Software Engineer C, C++,Windows, Linux
- ● Enhanced Secure Communication Infrastructure ([HAIPE](#))
  - ○ Designed and developed a [High Assurance Internet Protocol Encryptor (HAIPE)](#) on [Qualnet](#). This project strengthens network security by creating secure gateways, ensuring data confidentiality and integrity during communication.
- ● Enforced Access Control with [Bell-Lapadula Model](#) (C++)
  - ○ Designed and implemented the [Bell-Lapadula model](#) on top of HAIPE using C++ and Visual Studio. This integration empowers granular access control within the secure communication channels, preventing unauthorized access to sensitive data.

Bharti Airtel (Jan 2006 – Aug 2007) Associate Software Engineer C, C++
- ● Enhanced Video Delivery Platform (VDP) with AIL ([Airtel Live](#))
  - ○ Designed and implemented the Application Interface Layer (AIL) for [Airtel Live](#), an innovative VDP platform that streamed audio and video content to 3G mobile phones. This project utilized Session Initiation Protocol (SIP) and Session Description Protocol (SDP) for efficient communication and content delivery.
- ● Developed Multimedia Portal Application (VDP)
  - ○ Designed and developed a comprehensive multimedia portal application as part of the VDP infrastructure. This application facilitated seamless user interaction with the platform, enabling access to rich multimedia content.

Education

Masters:	Computer Science(Pursuing)
Masters:	PGDM (Information Technology) 2008 AIMA, Grade A
PG Diploma:	PGDEVD (Information Technology) 2006 CDAC, Grade A
Bachelor:	B.tech (Electronics & Communication) 2005 UPTU University 74%

Awards

Focus on Customer	Best Project:Samsung	Pat on Back:Mtree
Red Hat Multiplier	Team Titan: Clear2Pay	2nd Best Project:Bharti

Languages

English (Proficient), French (Intermediate), Spanish (Beginner), Hindi (Native)