**Amit Kumar**

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**Senior C++17, Python 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**

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| **Languages** | C,C++(5/5) Python,Java(4/5) ReactJS(⅘) Go(⅗) |
| **Debuggers** | gdb,valgrind,ddd(5/5) Visual Studio(4/5) |
| **Operating System** | Redhat,Ubuntu,CentOS(5/5) Active Directory(4/5) Windows 10(5/5) Linux Kernel(5/5) VMWare(⅘) |
| **Networking** | **Security/AAA** IPSec,SSL,IKE(4/5) LDAP,Kerberos(4/5) PKI,Certificates (4/5) VPN(5/5)  **Protocols** IPv4/IPv6(5/5) Multicast(IGMP,MOSPF,BGP(4/5) TCP,UDP (5/5) SIP,SDP(⅘) L2TP,MAC,OSPF(⅗) Control,Data plane(⅘) REST API( ⅘) JSON(⅘) XML(⅘) DPDK(⅘) Routing Protocols OSPF(⅘) HTTP,HTTPS(⅘) NFS(⅘) CIFS(⅘) Samba(5/5) |
| **Build System** | make,cmake(⅘) |
| **Versioning** | Git,svn.cvs,gerrit,perforce(⅘) |
| **Libraries** | Boost C++(⅘) |
| **Basic** | Data Structures & Algorithms(5/5) Object Oriented Design(⅘) Multithreading,IPC(⅘) Distributed Systems(5/5) Design Patterns(⅘) |
| **Databases** | MySQL,postGre(⅘) MongoDB,neo4j(⅗) |
| **Gateways** | Cisco ASA(⅘) Paloalto,JunoOS,F5(⅗) |
| **Others** | Machine Learning(⅗) Amazon Web Services(⅘) Agile(⅘) Open Source(5/5) SDLC(5/5) |
| **Cloud** | Docker(⅘) Kubernets(⅘) Ansible(⅗) Devops(⅘) |
| **Soft Skills** | Time Management(5/5) TeamPlayer,Leader(5/5) Strategy(5/5) Customer Obsession(5/5) |

**Work Experience**

**AMD India Pvt Ltd. (Jun 2020 – Till Date) C++ Programmer**

* Project-1: Porting Db32 debugger GPU Application to VMWare ESXi

Db32? RW(GPU(Graphics Processing Unit) registers, PCI Config Space,Video Memory, port, CPU MSR Registers).

*My Responsibilities*?Writing VMWareNDDK Driver,db32 code,Redesign(OOD) tools lib.

* Project-2: Update Voltage component in Tools Library for Rembrandt APU

Rembrandt? DDR5, 6nm AMD APU(Accelerated Processing Unit)

Tools Library? Contains code to interact with device drivers and collects voltage, thermal, power,registers etc information and present to the tool.

*My Responsibilities*? Reading APU Specification, adding register offsets, code.

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

* Project-1: Feature development SSSD(Active directory domain joining software) interface to the kernel.

*What*? SSSD waits(for 20 min) on the kernel's TCP-RTO timer to expire, causing packet losses, retransmissions.

*My Responsibilities*? Redesign interface for ldaps, ldap introducing ldap\_nw\_timeout

* Project-2: Fixing the design issues in samba file server software passdb backend, rpclient.

*What*? rpcclient shows ACCESS\_DENIED when queried to win2016 having printer attached.

*My Responsibilities*? Redesign rpclient’s server facing library.

* Project-3: Written parser in python 3.7 for Red Hat Support Insights project.

*What*? Support insights is a python based project for parsing,combining sosreports and other data provided by customers.

*My Responsibilities*? Writing samba, sssd parsers(responsible for mapping the data from a datasource) and Combiners(responsible for reducing the data from multiple Parsers into a reduced dataset).

**HCL Technologies(Cisco) (Jul 2014 – Jul 2016) Senior Tech Lead C++**

* Project-1: Cisco Adaptive security appliance: Feature development for IKE(Internet key exchange), IPSec(Internet protocol Security),SSL(Secure socket layer)

*What*? ASA is a security device that combines firewall, antivirus, intrusion prevention, and virtual private network (VPN) capabilities etc.

*My Responsibilities*? Bug fix and feature development Eg: 1. ASA picks an incorrect trustpoint to verify OCSP Response.

* Project-2: Reduced reported issues in OCSP(Online Certificate status protocol) code by 20%.

*My Responsibilities*? OCSP issues backlog was getting huge due to complex trustpoint setups by customers. Investigated and fixed design flaw in OCSP responder design.

* Project-3: “Feature-Request” message implementation in OpenvSwitch POC.

**Samsung (Jul 2012 – Jul 2014) Lead Engineer C++**

* Project-1: Offloading encryption/decryption to Cavium Card from SSL(Secure Socket layer). Code, Optimize, Performance improvement increased Transaction per second by 80%.

*What*? Enhance NITROX III(QUAD CNN3550-C20-NHB4-G) cavium card performance from 5k TO 36k TPS. Samsung was planning to create SSL encryptor/decryptor hardware inhouse. We were provided with old SDK based nitrox card to optimize

*My Responsibilities*? Card detection, writing SSL applications for interaction with nitrox card. Reducing, benchmarking the TPS.

* Project-2: Writing Smart TV Client application which received Audio,Video over RTP.

*What*? Smart TV client application is a multithreaded C based application which will receive Audio, Video stream received capture server and shows on console. Majorly TV-client has 3 threads: Audio, video, event handler.

*My Responsibilities*? Project was in production, needed Bug fix, feature development.

**Clear2Pay (Dec 2010 – Jul 2012) Senior Software Engineer C++**

* Project-1: Implement Token Bucket Algorithm for Congestion Control in POS App

*What*? Leaky and token bucket Algorithms are used to regulate bursty traffic. Tokens are added to fixed size bucket at a fixed rate. Bucket is having hole at the bottom. Leaky bucket sits in front of bursty-host and smothens the output.

*My Responsibilities*? POS application was not having rate control and hence huge packet drops and retransmissions. Developed interface for rate control.

* Project-2: Develop Message Layer for Train control system.

*What*? In the Train control system, there are two main entities. Office server(Controller) & Locomotive(Moving Engine+ Train). Messages are exchanged regularly between these two, Office Server provides Instructions to Locomotive & it executes those instructions

*My Responsibilities*? Implement Request movement Authority, Apply Brakes message interfaces.

**Mtree Software Pvt Ltd. (Aug 2008 – dec 2010) Software Engineer C++/C**

* Project-1: Development HAIPE(High Assurance Internet Protocol Encryptor) on Qualnet.

*What*? Qualnet is network modelling software that portrays behavior of real world communication networks. Used as a planning, testing, training tool. Users can test, develop protocols & test their behavior, analyze performance of networking protocols.

*My Responsibilities*? Implementation of HAIPE. HAIPE is a secure gateway that allows two enclaves to exchange data over an untrusted or lower-classification network.

* Implementation of Bell LaPadula(BLP) State Machine Model on HAIPE

*What*? - The BLP is a state machine model used for enforcing access control in government and military applications. This describes a set of access control rules which use security labels(ranges from “Top Secret” to “Public”) on objects. Top Secret Node cannot pass information to Public nodes, but vice-versa can happen.

**Bharti Airtel (Jan 2006 – Aug 2007) Associate Software Engineer C/C++**

* Project-1: Develop Application interface layer on Video Delivery Platform(VDP) using SIP(Session Initiation Protocol), SDP(Session Description Protocol), RTP(Real Time Transport)

*What*? VDP sends customized Audio/Video calls to 2.5G/3G Phones. This solution sits between SIP Stack (dilithium) and customized Applications. VDP takes instructions from Applications passed to SIP Stack, Stack creates SIP messages and sends them to IP network.

* Project-2: Implement Multimedia Portal Application on Video Delivery Platform.

**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)