**VARALAKSHMI CHIGURUPATI**

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**EXPERIENCE SUMMARY**

* Over 15+ years of experience in design and development of software for various domains likeTelecom, Railway Signaling, Automotive, Printing and IOT products
* Strong expertise in C++, C, STL, Unix, Linux, Python, Shell, Golang
* In depth experience and understanding of Object-Oriented Programming (OOP) concepts
* Expertise in various version control systems like Git, Gerrit, IBM RTC, Clear Case and Build tools like Jenkins
* Experience in developing Predix back-end microservices
* Result oriented developer with comprehensive domain and technical background
* Involved in extensive design, development and prototyping, code walk-through, review and testing in software development
* Developed Python scripts to parse XML, JSON and auto generation of C++ methods
* Proficient in memory management, auto pointers, pointer handling, callbacks, function pointers and Functions in C++/C
* Understanding of a variety of popular technologies in the space of IOT, including Ethernet/IP, MQTT, CoAP, time series databaseand the sensor area network communication protocols, such as BLE, ModBus
* Proficient in performing module testing, integration tests and system testing for the application.
* Expertise in Agile Scrum Master and Sprint activities
* Experience in performing Target, Regression, Sanity testing and Version Control’s Integration Process
* Experience with various source control tools like CVS, SVN and GIT/GITHUB.
* Experience in continuous build integration tool like Jenkins, Circle CI
* Knowledge of cloud computing and virtualization including Dockers
* Experience in creating UML Design diagrams like sequences, class and state diagrams
* Requirements management tools such as IBM DOORs
* Test development using scripting languages such as Python, shell, google test, google mock
* Good communication skills, self-motivated and quick learner
* Possess trouble shooting techniques, Debugging and Exception handling skills

**TECHNICAL SKILLS**

* **Operating Systems:** WinCE, MS Windows 7/NT/2000/VISTA/XP, Linux, Unix
* **Languages:** C, C++, Core Java, Golang
* **Scripting Languages:** Shell, Perl, Python
* **Protocols:** TCP/IP, UDP
* **IDE:** MS Visual Studio 2008, Altera, Xilinx, Eclipse, Predix SDK
* **Modeling Tools:** Rational Rose, Microsoft Visio 2010/2007, Enterprise Architect
* **Version Controls:** GitLab, Clear Case, Accurev, SVN, GitHub, IBM RTC
* **Libraries & Frameworks:** STL, Boost, IPC, multithreading, sockets, heap allocators, signals/event handling, Software Design OOP/OOD, Design Patterns, Google Test, Google Mock
* **Management Tools:** IBM RTC,Jira, Confluence, Jenkins, Circle CI, GDB, SVN, GIT/GITHUB, REDISS, GTest, GMock, CPP Unit, CPPCheck, Coverity, Eclipse UML TOOLS, ELK, Docker, Ansible

**WORK EXPERIENCE**

**Binary Computers Int’l Corp**

**Embedded Developer**

**Client: Meta (Facebook),Redmond, WA, USA Feb 2024 to Till Date**

* Working on the AR(Augmented Reality) and VR(Virtual Reality) product space as an embedded developer
* Refactored error logs as to enable the system debuggability
* Involved in development of the firmware update/OTA
* Adhere to AGILE methodologies, priorities and development guidelines

**Environment:** C, C++, Linux, Windows, Zephyr, Python, Shell, JSON, AGILE, VS Code

**Binary Computers Int’l Corp**

**Embedded Firmware Engineer**

**Client: T-Mobile, Bellevue, WA, USA(Working remotely from TX)September 2021 to Dec 2023**

* Go through the SyncUP Firmware PRD (Product Requirement Document) and deduce the requirements into user stories for the sprint
* Implement the SyncUP Firmware APIs for communication technologies like Bluetooth, Wi-Fi and Cellular on the IOT devices
* Writethe FSM (Finite State Machine) for Bluetooth and Wi-Fi feature
* Implementation of sending Telemetry data from IOT Devices to the Cloud as a secure Protobuf packet
* Involved in implementing the firmware OTA process
* Write and execute the unit/functional test cases of feature development
* Perform board testing on the Raspberry PI Board or Dev-EDGE board, Tracker board of the developed features
* Working on set up different pipeline jobs for Continuous Integration/ Continuous Deployment with the Gitlab CI/CD process
* Deploy the application on to the hardware target board using J-TAG and debug using UART interface

**Environment:** C, Linux, Windows, Zephyr, Python, Shell, Gitlab, Github, Zenoh Protocol, COAP Protocol, JSON, AGILE, Jira, Confluence, Docker, MS Visio, VS Code, Raspberry Pi 4, IOT hardware boards, SPI, RS-232

**Binary Computers Int’l Corp**

**Security Analyst –Team Lead**

**Client: Toyota Motor North America, Plano, TX, USA March 2019 to July 2021**

* Involve in the creating and modifying the VM process flow charts for Post-produciton and Pre-production
* Perform the code reviews of large applications, manually and using static analysis tools
* Follow the defined approaches for addressing vulnerabilities including system patching, deployment of specialized controls, code or infrastructure changes, changes in development processes, cloud devices
* Developing and maintaining of tools for use in internal vehicle penetration testing
* Design and implementation of vehicle testing automation platform
* Deployment of services through CD as docker containers using ansible playbook to development, SIT and produciton environment
* Identifying and classifying cyber security vulnerabilities and work on mitigation plans with product owners, ensure plans are documented understood and track the results of the plan execution
* Providing remediation guidance and recommendations to developers and administrators on improving the security posture of the client's enterprise

**Environment:**Windows, Linux, Penetration testing tools, Eclipse, JIRA, Microsoft VISIO, MS-SQL, PostgreSQL, gdb, AWS, Shell Scripting, PowerShell, Docker, GitLab, CI/CD, Ansible, Python, Golang

**Sears Holdings Corporation, Seattle, WA, USA August 2018 to February 2019**

**Firmware Engineer III/ C/C++ Engineer**

* Responsible for the firmware development of Home IOT Gateway/Hub
* Design and development of CGI Script for scanning the network to find blocked end points or DNS on #Sears Gateway
* Development of System Health Metrics for the Gateway System
* Preparing make files, debugging firmware
* Release and Deployment of new firmware to the production Gateways around the Geography

**Environment:**C, C++, STL, Linux, gdb, AWS -Mongo DB, Shell Scripting, multithreading, UML, IPC, Circle CI, Git, GitHub, Jira, Confluence, Google test, Eclipse

**Tata Consultancy Services, Detroit, MI March 2018 to August 2018**

**On-site coordinator / Team Lead / C, C++ Developer**

* Implemented the Logger functionality inside Tree-runner processor for QNX and Linux along with standalone Linux debugging application for **#Ford**
* Worked on communication between various modules of the Tree-runner using QNX IPC communication
* Testing of the of Performance (Tree-runner) processor with Host (Aurix) processor
* Monitor and Deliver the Tree-runner modules **#Module Lead**
* Involved in ADAS features(LKA, ACC,) implementations and high level design
* Setup of NXP S32V232 Evaluation board with Vision SDK

**Environment**: C, C++, STL, Linux, QNX,Yocto, gcc,qcc,gdb, multithreading, NXP Vision SDK, QNX Nutrino,GTest, GMock, git, Jenkins, Docker Container, Vagrant, Eclipse, Jira, I2C, UART

**Tata Consultancy Services, Boston, MA Jun 2017 to February 2018**

**On-site coordinator / Module Lead / C, C++ Developer**

* Design and Implementation of OSIPI client to subscribe for the PI data for # **GE Automation and Control**
* Setup of OSIPI Server setup to do unit testing
* Strong understanding of systems architecture and pattern concepts. Core Java, C++/OOP, STL, Multithreading, High Availability, and Shell scripting, all on a Linuxplatform
* Peer reviews of the Design and Source Code
* Develop and Execute the Unit test cases using google test environment
* Support System Testing, Acceptance (UAT) Testing and Production changes
* Debugging and troubleshooting production issues
* Installation, configuration and administration of OSI-PI server and manages PI data for publishing / subscribing
* Update the progress and status of the tasks through weekly and daily calls with the client
* Run the sprint Demo’s with the client for every sprint

**Environment**: Core Java, C++, STL, Linux, QNX,gcc/g++,gdb, multithreading,OSI-Pi, OPC-UA, Predix Cloud, Predix SDK, MFA, Edge Manager, Google test, git, Jenkins, Docker Container, Vagrant, Eclipse, Jira

**Tata Consultancy Services, Hyderabad, India& Virginia, USA October 2016 to June 2017**

**Team Lead**

* Gone through the standards from OVDA for CIP and understand the requirement to read the data from AB PLCs (Allen-Bradley Programmable Logic Controller) for **# GE Automation and Control**
* Design and Development of Implicit and Explicit messaging as Predix Machine Adapter for Ethernet/IP
* Responsible for Development/Enhancement, bug fixing as well as Production Support
* Design and Development of MQTT client as Predix Machine Adapter
* Analyzing, designing and implementing change requests for the C/C++.
* Develop and Execute the Module Test Cases on Unit and Integration Testing environments.
* Provided support for internal business process and responsible for communicating detailed technical information and providing technical assistance to customers, systems, and management and external sources.
* Provided on call Support for Critical Production Problems.
* Worked with an alert system that generated alerts for customers based on specific events happening in the market using C++.
* Setup and Bring up of the MFA(Mini-Field-Agent) Hardware and connect it with the AB-PLC hardware
* Lead the Predix Machine Adapter team technically and providing support for porting the solution onto MFA

**Environment:** C++, Core Java, Predix SDK, Predix Cloud MFA, Jenkins, Eclipse, OSGI container, time series data base, postgress, Rally, Ethernet/IP, MQTT

**Tata Consultancy Services, Bar hill, Cambridge, UK. April 2016 to September 2016**

**On-site coordinator / Senior IT Engineer**

* Development environment set-up using VS-2008 with WinCE platform builder and IBM RTC for **#Domino**
* Added the support of Bluetooth and Wi-Fi interfaces for Concord printers
* Used STL extensively to store data on Order history, accounts, securities, etc. for fast retrieval/update
* Used Boost libraries like variant, smart pointers, format, tokenizer, regex, foreach, thread, etc.
* A common shared memory is maintained as a part of IPC because the some of the data in request/response packet is updated intraday and modified by some other application and this data is also accessed by different application.
* Analyzed, Debugged and modified QuickFIX code which also used in packets formation i.e. Order Entry/ Order Modification or Order Cancellation or trades.
* Implemented vector/Iterator (C++ STL) as a buffer for data storage which will be used by different applications to feed the request packet or response packet.
* Implemented Multithreading to access the request and response buffer from different users in parallel.
* Worked on Enhancements and Bug Fixing of Concord printers
* Worked on Domino Concord printer board bring up and target testing
* Responsible for offshore team deliverables and worked as onsite coordinator

**Environment**: C, C++, Solaris (Shell Scripting), STL, Boost, IBM RTC, WinCE, Visual Studio-2008

**Tata Consultancy Services, Hyderabad, India. July 2011 to March 2016**

**IT Analyst/ C++ Developer**

* Experience in Debugging on Sun studio and related processes for **# Xerox**
* Worked on recreating and analyzing the ARs/SPARs in Core Imaging Modules (PCL, PPML and PPR) for Xerox Printers
* Responsible for Development/Enhancement, bug fixing as well as Production Support.
* Involved in writing PL/SQL part depends upon user requirements.
* Analyzing, designing and implementing change requests for the C/C++.
* Involved in writing optimization techniques for more accuracy of Macros in C/C++, C and C++ routines and Oracle SQL, PL/SQL.
* Developed new reports from Regression results using Python
* Develop and Execute the Module Test Cases on Unit and Integration Testing environments.
* Personal deliverables in support of these enhancements were business use cases, GUI requirements, acceptance criteria, test cases, issue resolutions, Jira tickets, end-user documentation, feature presentations and demonstrations.
* Provided On Call Support for Critical Production Problems.
* Involved in implementation of tracing and CoAP protocol module for # **Qualcomm** IOT
* Experience in maintaining the code in git hub and code review process
* Expertise in debugging and deploying on the target boards
* Verification and Validation for C/C++ code for **#Ansaldo** Railway Signaling products using Altera & Xilinx IDEs
* Traceability of test specification and report with Module Requirements in DOORS

**Environment:** C, C++, Linux, Unix, Clear case, SVN, Git, Gerrit, Altera and Xilinx IDE, Eclipse, Python, Shell Scripting, Jenkins, JIRA, Sun Studio 7 (Forte -Cross Environment), Accurev, Remedy, Jenkins, Core Java, Maven, Ant, wire shark, IBM Rational DOORs

**Aricent Technologies (Alcatel Lucent), Bangalore, India. September 2006 to May 2011**

**Senior Software Engineer**

* Exploration of the Telecom Domain, RAN Network and UMTS technology.
* Majorly involved in Radio Resource Management of Femto Cell development for **# Aricent**
* Involved in Design, Development, Module Testing & Target Testing of ACB (Access Class Barring) feature
* Involved in Developing the Open Access feature on Femto Cells
* Development and Module Testing of GSM Optimization feature. This provides the list of 2G neighbor cells of the Femto and this list will be used during the HO (Handover)
* Design, Development, Module Testing & Target Testing of PM. PM is responsible for maintaining the Performance measurement counters and collecting them to send it to the operator for logging of Performance Related Measurements from the applications of BSR into the PM Files
* Worked in the features Prioritized Open Access (POA) feature. POA is to give the priority to the Owner/Guest users over Public users.
* Involved in implementing the feature Femto Group Support
* Involved in implementing the feature Femto to Femto Handover. This feature is to support the Handover of CS and PS Calls between the Femtodevices
* Implemented the feature Software Support for 850/1900 Dual Band with the complete ownership.
* Implemented the feature Standards Compliant RNC ID as a feature Prime.
* Fixed the Testing Issues, MR (Modification Request) and CR (Change Request)
* Involved in the Integration Process, Building and releasing the Frameworks
* Implemented the feature Measurement/Mobile Assisted Handover from Femto to 3G/2G Network for only CS Call
* Worked with the PS Call and CS+PS MAHO (Measurement Assisted HO) to 2G/3G Network
* Worked for some time as Release Engineer - integration and release of new versions in the Version Control

**Environment:** C, C++ on SUN Solaris / Linux, Multithreading, Socket Programming, Shell Script, Rational Rose/UML, gdb, Wireshark, Beyond Compare, WinSCP, Putty, Clear Case, Wireshark, Web Sablime

**EDUCATION**

Bachelor of Engineering with specialization as Computer Science Engineering in 2006 from AacharyaNagarjuna University Guntur, India.