

# SUNIL BOTRE

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## Profile Summary

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- 18+ years of experience in developing enterprise applications using Cloud (AWS/AZURE , Golang, Python AI/ML GenAI, docker, Kubernetes, OpenShift ,C++ Windows/Linux, and Win32 related technologies.
- Experience in Integrating and deploying microservice based apps and their customization.
- Experience in System Architecture, UML and Design patterns.
- Comfortable working agile environment with cross location teams
- Experience in leading global teams
- Travelled at client site for Requirement gathering and Deployment, UAT testing.
- Experience in Agile/Sprint management.
- Work in Japan and Australia to provide support for deployment.
- Worked on GPS and GNSS technology.
- Worked in Finance (ATM Machines), Storage, Medical, Embedded, Automation, Mining and Data Analytics domain.

## Work Experience

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Persistent Systems Limited - Pune, India from March 2019 to till date.

Current Designation: Senior Technical Architect

Capgemini Software Limited - Pune, India from Dec 2011 to Jan 2019 date

Designation: Senior Consultant

WMS Gaming Solution (India)- Pune, India from Aug 2010 to Nov 2011 date

Designation: Senior Software Engineer

Persistent Systems Limited - Pune, India from Jun 2007 to Jun 2010 date

Designation: Senior Software Engineer

SP Soft (I) Technologies Private Ltd - Pune, India from Apr 2006 to May 2007 date

Designation: Associate Software Engineer

## Education

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Master of Computer Application

MES IMCC College, Pune University. Year 2006

## Certifications

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### Primary Skills

Python  
Golang  
Webservices  
Docker  
Kubernetes  
OpenShift  
AI/ML, GenAI  
IBM Watsonx.ai  
IBM Watsonx  
Assistant

C++  
C#  
Win32,  
Multithreading,  
DLL, Networking,  
System  
Programming

MFC  
COM  
C#  
CPPUnit  
Flex ActionScript

### Other skills

Shell Scripting  
AWS  
Azure  
IBM cloud

### Operating systems

Linux  
Windows Server  
ThreadX

### Tools used.

VS Code  
SOAP-UI  
Postman  
SVN  
GIT  
IBM Rational  
ClearCase  
JIRA  
Wireshark  
MS Office Visio

- **AWS Machine Learning Specialty 2024**
- **AWS Cloud Solution Architect Associate 2024**
- **IBM Badges**
  1. IBM Cloud Essentials
  2. Advanced Kubernetes Operators
  3. Containers Kubernetes Essentials
- **Persistent Watsonx GenAI**
  1. Persistent Annual Hackathon Semicolon(2021/2022/2024)
  2. Capgemini Design and Architecture Certification Course

## Project Details

### 1) Data Observability (Jan 2024 till date)

**Role:** Senior Architect

**Description:** User can ask the question for getting the system utilization and prediction details like CPU/Memory. Predictive analysis algorithm like XG-Boost/Prophet algorithm will process and update the Influx DB with predictive data.

The user questions and the relevant information are both given to the IBM WatsonX.ai. Its identity the matching intent and dialog management calls the webhook API with input data. Web API server will read the data from Influx DB. This data will process to generate the summary for each day/month/year containing statistical information, patterns, anomalies, seasonality of the data.

This summary documents are split into chunks using Langchain API, RAG, and store into chroma DB. The relevant chunks are then passing to IBM Watsonx GenAI LLM model like “mixtral-8x7b-instruct-v01-q”. Model is train with prompts and instructions to understand the context and provide the response specific to questions.

#### Responsibilities:

- Worked on technical tasks related to WatsonX.ai, GenAI
- Design/Architect of the system.
- Worked on Module implementation.
- Worked on bug fixes and enhancements.
- Code review.

**Tools/Technologies:** Python (Langchain package), AI/ML, NLP, Prompt Engineering (Zero Shot, Few Shot), RAG IBM Watsonx Assistant, IBM Watsonx.ai GenAI Models, Influx DB

### 2) Data Warehouse (Feb 2020 till Dec 2023)

**Role:** Senior Architect

**Description:** It designs and markets high-performance data warehouse appliances and advanced analytics applications for uses including enterprise data warehousing, business intelligence, predictive analytics, and business continuity planning.

#### Responsibilities:

- Worked on technical tasks related to migration to Azure and AWS
- Design/Architect of the system.
- Worked on Module implementation.

StarUML  
Enterprise Architect  
QT  
GDB  
Valgrind  
Doxygen  
Boost  
OpenGL  
OpenCV  
IBM Rational Doors  
PRQA Misra C++ review  
IAR Embedded-Workbench Editor  
GUIX Framework  
JTAG tool for Debugging

#### Databases

SQLite  
MS-SQL Server  
Oracle  
PostgreSQL  
Cloudant  
Influx

#### Build-Tools

One-Pipeline  
Jenkins

#### Protocols

TCP/UDP  
HTTPS/HTTP

- Worked on bug fixes and enhancements.
- Code review.

**Tools/Technologies:** VS code, Python, Golang, Docker, Kubernetes, Openshift, IBM Cloud, AWS, Azure, RHEL

### 3) PowerPC Porting (Mar 2019 till Jan 2020)

**Role:** Architect

**Description:** This project involves porting of Open-source libraries on Linux IBM PowerPC Processor Platform. Resolving the issues in the compilation and test cases. Making the required code changes for PowerPC platform. Creating the Batch script and docker files for installation.

**Responsibilities:**

- Understanding the Open-Source libraries
- Worked on Building, Porting changes.
- Worked on docker/Kubernetes.
- Code review.

**Tools/Technologies:** C++, Python, Shell Script, Docker, Kubernetes

### 4) MRI Image Processing (Feb 2018 to Jan 2019)

**Role:** Senior Consultant

**Description:** This application performs MRI Image processing. It provides the C++ COM interfaces to MRI application developed in C#.COM interfaces provide the Clipping services and Image processing functionality. It provides Clipping services like Manual, Brush, and Auto Clipping.

**Responsibilities:**

- Requirement gathering.
- Design/Implement of different modules.
- Code review and Testing.

**Tools/Technologies:** C++, C#, COM, DLL, CPPUnit, OpenCV

### 5) Infusion Pump (Jan 2016 to March Jan 2018)

**Role:** Senior Consultant

**Description:** This is Infusion pump device embedded software which provides the following functionalities. This software communicates with other application for configuration and downloading the data to & fro from the pump device.

- It provides the system and Patient Specific Configuration on the Pump device. (As per Therapy suggested for patient).
- Download the event data from Pump Device.
- Upgrading the software on pump device.
- Communicates with Other Fluid delivery module for infusion running.

- Programming and execute the patient therapy as per rules defined.

When Pump restarted it will show the configuration information and then user can use the existing therapy or create new therapy to start the infusion. The Pump device has sensors which check the pressure, volume, density, air & accordingly regulates the Infusion from the Infusion Bag.

**Responsibilities:**

- Requirement gathering of the system.
- Design/architect of the system.
- Implement/Testing of different modules.
- Code review.
- Client Communication/Status update.

**Tools/Technologies:** C++, C#, Win32 API, DLL, System programming, STL, Express Logic ThreadX and FileX Library.

Microsoft visual studio 2013, SVN, SCM, JIRA, Enterprise Architect, Code Collaborator. IBM Rational DOORS 9.2, Doxygen. IAR Workbench Editor, JTAG, PRQA Misra C++ Standard.

## 6) Mine Application Software (Dec 2011 to Dec 2015)

**Role:** Technical Specialist

**Description:** This Program is mine application software. It consists multiple applications which are installed on different machine in different networks. SCT application is installed on trucks which are running on mines. It involves Central MAS application, HMI application installed on truck and remote Web based interface. Central application receives the Pattern, holes and explosives recipe, and user data from Third Party Database application.

It sends this data to HMI application; truck user can use this information to charge the holes with explosive. This actual information is provided to Central application which then stores it into database and provides it to Remote Web based java interface.

Remote user can monitor the progress of the holes charging on mine site using Remote Web based java interface. HMI application gets the location of truck using GPS antenna w.r.t GPS base station by communicating with GPS satellite. This location information will be sent to Remote web interface to display the truck movement on GUI.

**Responsibilities:**

- Requirement gathering
- Design/architect.
- Module Implementation and Task Estimation and allocation
- UAT testing at mine on-site in Australia.
- Code review.
- Client Communication/Status Update.

**Tools/Technologies:** C++ (C++ 11), Win32 API (DLL, System, Multithreading, Socket programming), Java, Linux Action Script, STL, Boost, QT Framework 4.0

Microsoft visual studio 2010, MS Office Visio 2003, Linux, SVN, GIT, CMAKE, JIRA, Jama Contour, Mongrel Web server, Postgres SQL 9.0, Valgrind, Wireshark, TeamViewer, StarUML, Doxygen, GDB, Vi editor, GPS library, GNSS system.

## 7) Online Gaming (Aug 2010 to Nov 2011)

**Role:** Senior Software Engineer

**Description:** This application is online client/server version of Casino slot games. Games have Base and Bonus game features. In Base game player can spin symbols and get win depending upon the symbol's combinations.

In Bonus game player can have multiple spinning and extra features which can award extra winning amount to player. Server contains the Input math files which have the detail information of winning combination of symbols. Client communicates with the server with different messages while loading, playing, and displaying results.

**Responsibilities:**

- Requirement gathering
- Module Implementation and Task Estimation and allocation
- Code review.

**Tools/Technologies:** C++, STL, Win32 API (DLL, System, Multithreading, Socket programming).

Microsoft visual studio 2010, MS Office Visio 2003, CVS, SVN, Flex ActionScript, Doxygen, GDB

## **8) Data Analysis Application (Jan 2009 to Jun 2010)**

**Role:** Senior Software Engineer

**Description:** This is data analysis tool, which is use for gathering the data from different source and generate the required information which is useful for management decision making. It contains the different client application like Query Generator, Report Writer, Warehouse Manager, Warehouse Builder etc.

**Responsibilities:**

- Requirement gathering
- Module Implementation and Task Estimation and allocation
- Code review.

**Tools/Technologies:** C++, STL, Win32 API (DLL, System, Multithreading, Socket programming), MFC

Microsoft visual studio 2005, IBM Rational Rose Clear Case, Doxygen

**Responsibilities:**

- Requirement gathering
- Module Implementation and Task Estimation and allocation
- Code review.

**Tools/Technologies:** C++, STL, Win32 API, MFC, Intel (IPP) DSP library, OpenGL 3.7.6 Graphics library

Microsoft visual studio 2008, Microsoft VSS 6.0

## **9) ATM Middleware Application (Jun 2007 to Dec 2008)**

**Role:** Senior Software Engineer

**Description:** ATM contains application software and Middleware. Information entered by the customers is kept safe by encryption and compression. Parameters for both these activities are defined in the configuration file. Such encrypted (and/or compressed) messages are sent to the server, which decrypts and decompresses the messages before any further processing is done on

these and are sent to main Central server. The responses from central server move back in the same way. This middleware acts as Communication Interface between application software and Server.

**Responsibilities:**

- Requirement Analysis and prototype building
- Designing of the modules and Development according to the design specification
- Preparing the test cases and unit test the modules.
- Working at client side during UAT phase in Japan

**Tools/Technologies:** C++, Win32 API (DLL, System, Multithreading, Socket programming), STL

Microsoft visual studio 6.0, MS Office Visio 2003, SVN, Doxygen, CPPUNIT.

## **10) Centralized Enterprise Backup Management Application (Apr 2006 to May 2007)**

**Role:** Software Engineer

**Description:** This product provides them a backup management agent developed in C++ and centralized cross platform remote management console developed in Java which communicates with agent using CIM/WBEM protocol. The centralized management console allows user to deploy the management agent over a network from Windows or Linux platform. It provides all the enterprise class application features like agent discovery, User / Group management, Group wise operations and reporting. The management agent provides the various features like backup location, backup selection, backup schedules (proprietary and windows scheduler), restore/compare/verify and log and disaster recovery management. Backups can be performed to a variety of different Backup Locations and media including IBM's Tivoli Storage Manager, tape, disk, network-attached storage etc.

**Responsibilities:**

- Requirement Analysis and prototype building
- Designing of the modules and Development according to the design specification
- Preparing the test cases and unit test the modules.
- Code review.

**Tools/Technologies:** C++, STL, Win32 API (DLL, System, Multithreading, Socket programming).

Microsoft visual studio 2010, MS Office Visio 2003, CVS, SVN, Flex ActionScript, Doxygen, GDB