Prajod Vettiyattil

Startup Founder, CEO, Programmer and GenAI Consultant
Bangalore
LinkedIn | Stackoverflow | Github | https://agisystems.in

Education
Bachelors (B-Tech) in Computer Science and Engineering

Certifications
Sun Certified Enterprise **Architect**, Level 1 exam, passed with 87%
Google Cloud Platform Architect, Coursera Certification, May 2020

Experience summary

* Founder and CEO of AI startup: **AGI Systems**
* Architect, Programmer, 10x developer, GenAI Consultant
* Python (10 years), Java (15 years) and some Nodejs
* Hands on programmer who has handled critical and challenging projects
* AWS and Azure Cloud
* **LLM, Deep Learning, Computer Vision** and Image/Video/Log Analytic Solutions
* Big Data Engineering: Apache **Spark**, **Kafka**, **NiFi, Cassandra, MongoDB**
* Industrial Robotics Platforms using python, **Docker,** ROS**, Tensorflow and Computer Vision, Industrial Cybersecurity**
* Published **technology articles** and presented at **technology conferences**
* REST API, Service Oriented Architecture and Message Oriented Middleware
* Handled construction of software products that were licensed to clients for millions of dollars
* In depth knowledge on developing **scalable**, **distributed** systems including electronic trading systems and e-commerce applications
* Created an **innovative training** methodology for niche skills
* Knowledge of object oriented analysis and design using **UML** and **design patterns**
* **Mentored** engineers on many projects, helping them learn to design and implement systems
* Extensive experience in application **performance engineering**
* Consistently commended for my fast learning abilities, analytical and lateral thinking
* Used **TOGAF** and ATAM in to create and review Architectures

Publications

Speaker at	Published articles on
Pushing the limits of Generative AI	Machine Learning for Smart Manufacturing: wipro.com
Experience and value layers of the Metaverse	Kafka Overview on wordpress.com
MCMA Techcon 2020 (Cybersecurity in Factory)	Ansible tips on wordpress.com
Robotics Week, 2020(Teleoperated Robots)	Skills Challenge in Open Source Adoption: wipro.com
Automate Show 2019, Chicago(Robotics and AI)	Big Data In Enterprise Integration in *Linux For You* magazine
ApacheCon US 2017 (Deep Learning with Medical Imaging)	Cloud Foundry Architecture in *Open Source For You* magazine

ApacheCon EU 2016 (Deep Learning with Thermal Imaging)	Open Source Adoption in the Enterprise: wipro.com and wso2.com
JBoss Developers Conference, 2012, 2013	
Open source India conference, 2012, 2014, 2015	
Great Indian Developer Summit, 2014	

Technology used in projects

Python, **Java** , SQL, Scala, Nodejs, C++, C, PERL, awk
IOT, Robotics(SLAM,Kinematics)**, Docker,** Ansible, Flask, Django
Azure Cloud, AWS Cloud, GCP (Coursera certification)
Spark, Kafka, ELK, Flume, Hadoop, Hive, **Cassandra,** MongoDB
Tensorflow, DeepLearning4J
OpenCV, OPC-UA
UML, Rational Rose, Visio
Spring MVC, Struts, JBoss
Apache Camel, Mule ESB, Sonic MQ, Active MQ, Weblogic, Websphere
Postgresql, MySQL, Sybase, Oracle, Hibernate, Infinispan
Ubuntu, Solaris, IBM AIX, SCO Unix

Project experience is listed in pages that follow

Work experience

Worked in multiple roles and projects; only a few are listed here

Project 1: vMinr: SaaS product to speedup by 10x, the manual review of video recordings of long events

Languages/tools/OS
LLM, GPT, Python, pytorch, CUDA
Duration Nov 2023 to Present
Role Sales, Marketing, Programmer, Architect

Project brief
Building the first product of AGI Systems, vMinr. vMinr will speed up the slow, human intensive and error prone process of the first and the slowest step of the video editing pipeline: converting raw videos to rough cut. Video recordings of multi-day events like marriages and conferences can be dozens or hundreds of hours long. vMinr uses and innovative combination of multi-modal generative AI to automatically review the raw videos and extract the relevant portions into rough cut videos. This will speedup the video editing process by 10x of more, providing great value to customers.

Project 2: Virtual Reality based and Generative AI supported Retail Planogram creation for a Chocolate Manufacturer in the US

Languages/tools/OS
Azure OpenAI, Chat Completion API, C#, Python, Unity 3D Game Engine, Blender
Duration May 2023 to Nov 2023
Role Programmer, Architect

Project brief
Retail planogram is about how to place items in the shelf of a retail store to get the best sales outcomes. The planogram gets changed frequently. It is a time and labor-intensive process. Our solution enables fast iteration for planogram design using Virtual Reality based solution, where domain experts can collaborate across locations. As the backend decision making engine, the solution uses Generative AI API from Azure OpenAI (ChatGPT like solution, but inside Azure).

My role
- Creation of Solution Architecture and Technical design
- Coded the multiplayer features in C# with Unity 3D
- Implemented the python proxy server to Azure OpenAI
- Team selection, review and mentoring
- Implementation of C# based platform for configurability, reusability, and modularity, to support diverse retail shops
- Prompt Engineering to create the correct prompt templates to handle multiple business priorities

Project 3: Customer churn management solution for Insurance firm in the US

Languages/tools/OS
AWS Cloud, AWS Glue, Postgres RDS, Python, Nodejs, React, .Net Core SDK, C#, AWS EMR(Spark)
Duration Nov 2022 to April 2023
Role Architecture, Design, Code Review, Team mentoring

Project brief

Client wanted to move from an XL based to a cloud based solution for predicting and preventing the churn of insurance customers. The solution involved ETL from Salesforce and Terradata and sending the data to an external ML model vendor and a UI tier for Client interfacing teams extract churn probabilities and proactively reach out to customers to prevent them from leaving.

My role

- Creation of Solution Architecture and Technical design
- Selection and justification of AWS tools with Enterprise Architecture team
- Code review
- Coding using.Net Core SDK for the UI Tier
- Design of REST APIs for the UI tier

Project 4: Observability Solution, for Azure PaaS for Data Pipeline projects, for a Power Distributor in Australia

Languages/tools/OS
Azure PaaS, Log Analytics, Python, Data Azure Resources monitored: Data Factory, Databricks, Postgresql, Sql DB, Synapse, EventHub, Storage Account, VM
Duration April 2021 to Jan 2022
Role Architecture, Design, Development

Project brief
Implement Log capture and real time Dashboarding for business projects that use Azure PaaS based Data pipelines, and send Alert Notifications, if defined error thresholds are crossed. This is a critical solution that will be used by multiple business projects for monitoring, when they are deployed in production.

My role

- Creation of High Level Design
- Creation of Detailed Design
- Estimation of HLD, Detailed Design and Build Efforts
- Creation of implementation plan
- Review and correction of other designer's effort for detailed designed
- Implementation of the python library for custom logging
- Justification of designs with multiple stakeholders, including Enterprise Architecture team

Project 5: Industrial Automation for a Gas Cylinder Warehouse in UK

Languages/tools/OS
AWS, Python, Django, Docker, IIOT, Fast API, Ubuntu, Postgresql, Tensorflow, OpenCV, Cybersecurity, S3, Serverless(Lambda, RDS), Aurora, Athena, Datasync
Duration Dec 2020 to March 2021
Role Architecture, Design, Development

Project brief
Industrial Automation project for automation of a Gas cylinder warehouse, for supply chain optimization. This project implements automated storage and retrieval system(ASRS) for gas cylinders. On-premise and AWS Cloud based.

My role

- Proposal creation and justification, customer interactions
- Software and Integration Architect

- Creation of detailed Requirement and Architecture documents
- Lead the software implementation and Robotic hardware integration
- Security architecture for on-premise and cloud

Project 6: Wipro Robotics Platform for Industrial Automation

Languages/tools/OS
Python, Django, Microservices, Docker, Docker, Fast API, Ubuntu, Postgresql, Tensorflow, OpenCV, OPC-UA, MODBUS, UR5, Fanuc, Kuka, Yaskawa
Duration Nov 2019 to May 2021
Role Architecture, Design, Research, Coding and Pre-sales

Project brief
Create a reusable software platform for supporting deployment across wide variety of customer deployments that use Industrial Robots, PLCs and manufacturing machines

My role
- Platform design and initial framework implementation
- Project plan creation, resource allocation, optimization and tracking
- Customer demonstration and consulting
- Presales work for customer RFPs
- Conduct internal training on Robotics

Project 7 BDAS: *Berkeley Data Analytics Stack*

Customer: Multiple customers, since this is a Big Data Platform deployed at multiple customer sites
Languages/tools/OS: Spark, Kafka, Spark Streaming, Hadoop, Storm, Nodejs, Cassandra, MongoDB, Elastic Search, Python, Scala, DeepLearning4J, Tensorflow, OpenCV
Duration: Feb 2013 to Aug 2017
Role: Platform Conceptualization, Architecture ownership, Domain solutions

Project brief:
BDAS is a reference big data framework created by Berkeley University. This project is about implementing this platform and creating domain solutions on top of the platform. Implemented performance tests and platform integration. Creating Deep Learning solutions for Video processing for **Medical Image classification**, Automating Product Quality Inspection.

My role:
- Conceptualize, ideate and design
- Integration: Integrating different parts of the framework for best fit
- DevOps: Writing ansible automation scripts for cluster deployment and integration
- Performance testing and comparison
- Evangelize the solution with sales team and customers
- Consult with customers on the applications of the platform
- Thought leadership and brand building for Wipro on Open Source

Project 8 OSIS: *High performance open source middleware, FTP Gateway, Multi-site Integration*

Customer: Multiple customers, since this is a product framework
Languages/tools/OS: Open source middleware(JBoss AS, Apache Camel, Active MQ), Infinispan (Distributed Cache), Apache Derby, Amazon Web Services, Spring Framework
Duration: Aug 2012 to Feb 2013
Role: Product Conceptualization and Architecture ownership
Architectural patterns: SOA, ESB, MOM, JEE patterns, Scalability patterns

Project brief
This is a high visibility project in Wipro, funded by the CSO, to enable the organization to take a non-linear growth path.

The solution was built to be sold to multiple customers. It would help our customers accelerate their open source middleware based integration projects, by providing a *readymade software platform using Open source middleware, that is highly scalable, highly available and feature rich*.

My role:
- Ideation: Using my experience with multiple products and customer insights to conceptualize OSIS
- Selling the idea internally to business teams, to get project funding
- Architecture ownership
- Evangelize the solution with sales team, customers and partners
- Consult with customers on Open source middleware
- Thought leadership and brand building for Wipro on Open Source

Project 9 **Business Transformation for a Major Telecom company**
Customer: Major Telecom Company, India
Languages/tools/OS: Java, JEE, SOA, Oracle Fusion
Duration: Jan 2008 to May 2008
Role: Lead Integration Architect
Architectural patterns: SOA, Pipe and filter, Messaging Bridge, and Message Router

Project brief
This was a green field project worth USD 300 million. It was an India wide, large scale expansion of Telecom services and involved integration of 50+ telecom applications.

The Telecom customer had less than 10 million subscribers. They wanted to expand their footprint in India, to have a pan-India subscriber base. For this, Wipro was commissioned to:
- Select a set of new telecom domain and software products
- Build out a completely new architecture that scales to handle tens of millions of customers

We had millions of new subscribers within a few months of pan India launch and the system scaled extremely well. The Telecom company now has more than 50 million customers, and the solution can handle upto 150 pre-paid customer onboarding requests per second.

My role
- Product selection lead for middleware
- Design of Integration Architecture
- Assist with Enterprise Architecture creation
- Support the Data Architecture team
- Design of high performance components
- Service Design for SOA, Registry design, Canonical model design
- Enterprise Architecture Strategy and Governance

Employer: Verisign, India

Project 10 **Text alerts for Mobile phones**
Company: LightSurf (a Verisign company), Bangalore.
Languages/tools/OS: Spring Framework/ Struts/ Hibernate/ Linux
Resin/Oracle 9i / Eclipse IDE, ArgoUML, UMLet
Database: Oracle 9i, LDAP.

Duration: May 2005 to Nov 2005
Role: Technical Architect
Architectural patterns: IoC, Messaging Bridge, and Message Router

Project brief:
The Text Alerts project enables the customers of a large telecom company in the US to receive SMS Text alert messages. Customers can receive messages after subscribing using a PC or WAP device. The alerts messages may consist of stock quotes, news, sports news, astrology etc. The system has a comprehensive web/WAP interface that a subscriber can use to configure his subscriptions.

The system uses the Spring Framework for Dependency Injection, and Hibernate for the Object Relational Mapping layer. Architecturally, it is a Messaging Bridge: Takes live data from multiple external feeds, converts them into formats suitable for text messages and sends SMS to subscribers. The web layer is load-balanced using Cisco ArrowPoint.

This project was highly successful. We had 100,000 subscribers within 2 weeks of product launch and the system scaled extremely well.

My role
- Component and class level design; justify the design to the Architecture team in US.
- Design and implementation of the classes/JSP for the UI layer (using Struts MVC)
- Design a data access layer for use by the struts classes, to decouple the data access logic from the struts classes.
- Implement prototypes for integrating the system with external systems.

Employer: Integral India Software

Project 11 Electronic Trading System Integration
Company: Integral Software India Pvt Ltd, Bangalore.
Languages/tools/OS: J2EE/XML/ XSLT/ Linux / WinXP
JMS/Weblogic 7.1/Oracle 9iAS / Websphere Studio
Database: Oracle 9i
Duration: Nov 2004 to April 2005
Role: Architect
Architectural patterns: Messaging Bridge, Pipe and filter

Project brief:
The Electronic Trading System Integration project integrates two different FX trading systems. These trading systems are used by some of the Major FX Liquidity Providers in the world. The adaptor that we implement will allow FX traders in one FX Trading hub to trade with liquidity providers in another FX Trading hub.

The adaptor has a two-tier architecture. This was done for scalability and separation of concerns. The first tier is a java application that functions as an Object Adaptor, which implements connection management to external systems and converts the external FX Trading system's object model, to the local FX Trading system's object model. The second tier sits on a J2EE app server and uses Stateless session beans and Message driven beans to map business logic between the two FX Trading systems.

My role
- Interact with the client and help create the requirement specification
- Create the logical architecture and design for the FX Trading system adaptor.
- Implement a prototype, and test with existing systems.
- Implement a core module of the adaptor.

Project 12 Rates Manager
Location: Integral Software India Pvt Ltd, Bangalore.

Languages/tools/OS: J2EE/XML/Struts / Linux/ Win2000
JMS/Weblogic 7.1/Oracle 9iAS / Websphere Studio
Database: Oracle 9i
Duration: 9 months
Role: Architect and Technical lead
Architectural patterns: Pipe and filter, Message Dispatcher, MVC

Employer: Lisle Technoplogy Partners, Bangalore; Feb 2002 to July 2003

Project 13 DBS
Location: Lisle Technology Partners India Pvt Ltd, Bangalore.
Languages/tools/OS: Java/EJB/XML/XSD/XSL/Struts / Solaris/ WinXP
JMS/Weblogic 7.1/JBoss cluster
Database: Oracle 9i
Duration: 6 months
Role: Technical Architect.
Architectural patterns: Pipe and filter, Message Dispatcher

Employer: Cisco Systems, Bangalore India

Project 14 Triveni
Location: Cisco Systems India Pvt Ltd, Bangalore.
Languages/tools/OS: Java/Servlets/JSP/Struts /C++, Solaris/ Win2000/NT
JMS/TIBCO
Database: Sybase

Built a Struts based web front end for maintaining Cisco's network elements. Was also involved in maintaining Cisco's existing solution for network element management, and performance management.

Employer: Park Computer Systems, CA, USA

Project 15 Schwab Bond Source
Location: Charles Schwab & Co, San Francisco, CA
Languages/tools/OS: Java, C, C++, PERL, EJB, Servlets, Visual Café, TIBCO/Rendezvous, JMS, BEA Weblogic, and Solaris 2.6.
Database: Oracle.
Role: System designer and developer

Project brief and my role
Schwab Bond Source(SBS) is a multi-tiered **Bond Exchange engine** designed for high availability; with fail-over management software. It forms a part of Schwab's efforts to automate its **Capital Markets** and Trading Technology division. The trading system in SBS implements an electronic marketplace like NASDAQ for bond trading. Security information provided by various bond dealers, and updated in real time, is pooled into SBS inventory, and made available to customers.

Major accomplishments

* Analyzed, redesigned and implemented the trading system for SBS. The business logic is implemented using Enterprise Java Beans. SBS implements and uses the **FIX 4.1** (Financial Information Exchange) protocol for exchanging order information with dealers.

* Designed and developed a multithreaded C application using oracle pro*c and Solaris threads package to calculate parameters for incoming real time quotes, from Schwab's clients. The program uses TIBCO middleware to receive quotes.

Employer: 21st Century Consulting, NJ, USA

Project 16 Pre Trade Compliance Engine
Location : Prudential Investment Services, New Jersey
Languages/OS : Visual Café for Java on Win NT for development. JProbe 1.1 Java profiler
IBM MQSeries 5.0 , IBM RS600 running AIX 4.2.

Project description:
Pre Trade Compliance Engine(PTC) is intended for use by brokers trading bonds related to short-term municipal markets. The trade management system verifies that every trade that takes place complies with SEC and Prudential internal rules. Inter-tier communication is accomplished by means of the IBM MQSeries messaging server.
PTC is a Java-based rule compliance engine for the real-time pre-trade compliance checking of trades. It is a multi-threaded application.

Responsibilities:
Handled the module for interfacing PTC to MQSeries and for parsing incoming trade messages and rules. Implemented multithreaded message queue management. Created a rule verifier for testing the PTC rule-processing engine.

Conducted performance profiles on PTC with JProbe, using memory consumption and execution time as parameters; and identified coding styles and data structures that were responsible for slowing down the engine.
Performance tuned PTC, reducing its memory consumption by 65% and improving overall response time by more than 100%.

Employer: Tata Unisys, Mumbai

Project 17 COM.unity
Location : Tata Unisys Ltd, Mumbai, India
Languages/OS : VC++ on Windows NT(3.51 & 4), C and C++ on UNIX(SCO & Unixware), SQL (on OSMOS ordbms)

Php based white labeled website for e-commerce, based on an Object DBMS. I created custom enhancements to php based on the language constructs needed for the e-commerce website.