

# Prasanna V Nagarajan

Principal Software Engineer - Microsoft

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## SUMMARY

Principal Software Engineer at Microsoft with 16+ years of experience in building and scaling enterprise software solutions. Currently leading AI/ML initiatives in Industry Solutions Engineering, focusing on Generative AI applications and data platforms. Proven track record of leading engineering teams, developing distributed systems, and creating scalable solutions across multiple clients. Passionate contributor to open-source projects with expertise spanning full-stack development, cloud-native applications, and technical leadership.

## SKILLS

### AI/ML Technologies

Azure AI/ML • ML/LLM Ops • Generative AI

### Programming Languages

Java • JavaScript • TypeScript • Ruby • Python • SQL

### Leadership & Management

Technical Project Leadership • Hands-on Technical Leadership • Pre-Sales Technical Consulting • Team Mentoring

### Cloud Platforms

Microsoft Azure • AWS • Cloud-Native Solutions

### Software Engineering

Full-Stack Development • Distributed Systems • Design Patterns • Test Driven Development

### Development Practices

Agile Methodologies • DevOps • CI/CD • JUnit • Code Reviews

## WORK EXPERIENCE

Jun 2022 - Current

**Principal Engineer** at Microsoft Corporation

📍 **Bengaluru, Karnataka, India** <https://www.microsoft.com/>

Leading AI/ML initiatives and data platform development in Industry Solutions Engineering. Progressed from Senior Software Engineer to Principal Engineer, focusing on Generative AI applications and scalable enterprise solutions.

- Leading cross-functional teams to develop AI/ML solutions for enterprise clients using Azure AI services
- Architecting reusable patterns and accelerators for enterprise AI/ML solutions across multiple clients
- Driving technical strategy for Generative AI applications across multiple industry verticals
- Mentoring engineering teams and establishing best practices for AI/ML development, LLMOps and MLOps
- Contributed to open-source projects and internal tooling improvements

Jun 2009 - Jun 2022

**Technical Principal** at Thoughtworks Technologies

📍 **Global (India, Germany, South Africa)** <https://www.thoughtworks.com>

13-year journey progressing from Application Developer to Technical Principal across multiple countries. Led technical consulting engagements, international assignments, and large-scale software delivery projects.

- Led technical consulting engagements and provided strategic guidance on software architecture
- Architected, designed, and developed large-scale distributed systems for enterprise clients
- Led pre-sales technical consulting and solution design activities for enterprise clients
- Built enterprise web applications using Java, Ruby on Rails, and modern web technologies
- Implemented and mentored teams on agile methodologies, TDD, and software engineering best practices across multiple clients
- Gained international experience across 3 countries with multi-year assignments in Germany (2 years) and South Africa (1 year)

## PROJECTS

Aug 2024 - Current

### Multi-Agent Smart Home Platform

**Skills:** Multi-Agent AI, ML-First Routing, LangGraph, Semantic Kernel, Conversational AI, Platform Engineering

Built conversational AI platform enabling natural language control of 50+ smart home device types across mobile, voice assistant, and robot form factors

- Architected scalable platform supporting 50+ device types with extensible federated agent architecture and end-to-end agent traceability
- Reduced LLM inference costs through ML-first routing architecture (semantic cache + intent classification)
- Designed heterogeneous agent system enabling plug-and-play integration across diverse AI technologies
- Reduced agent onboarding from 4 weeks to 9 days via self-service platform enabling 10+ teams
- Coordinated cross-functional collaboration across multiple product teams to deliver complex multi-agent program

Oct 2023 - Jun 2024

### Enterprise GenAI Gateway Pattern

**Skills:** Azure APIM, GenAI Gateway, AI Governance, Enterprise Architecture, Cost Optimization

Created comprehensive enterprise GenAI gateway pattern and tool-agnostic architecture using Azure APIM for AI governance and cost optimization

- Published Microsoft Learn module and open-source accelerator
- Implemented intelligent throttling and dynamic model routing
- Enabled accurate PTU capacity planning through usage analytics

Dec 2022 - Aug 2023

### MLOps Model Factory Pattern

**Skills:** MLOps, Azure ML, Model Factory, CI/CD Pipelines, Open Source

Designed ML Model Factory pattern providing standardized pipeline templates for rapid model development, validated across retail and telecom sectors

- Reduced ML project setup from weeks to hours through template scaffolding
- Open-sourced as Microsoft MLOps Model Factory Accelerator
- Successfully deployed multiple models to production across industries

Dec 2018 - Dec 2021

### Enterprise Retail Platform - POS Deployment

**Skills:** Microservices, Custom Orchestration, Large-Scale Deployment, Java, Golang

Led microservices platform deployment to 20,000+ POS machines with custom container orchestration and minimal downtime requirements

- Designed custom orchestration system using Docker Compose-like DSL
- Achieved 10-minute maximum downtime across diverse retail environments
- Enabled 60+ developers across 5 teams to deploy 40+ services independently

Jan 2017 - Nov 2018

### Automotive Sales Portal - Microfrontends

**Skills:** Microfrontends, React, Dynamic Composition, Technical Leadership, Conference Speaking

Pioneered microfrontends architecture for automotive sales platform enabling independent team development with dynamic browser composition

- Led technical coordination across 40+ developers in 5 independent teams
- Developed browser-based dynamic composition system for unified UX
- Established thought leadership through conference presentations and publications

EDUCATION

Jun 2011 - Jun 2013  
**Master of Science (MS) Software Systems** at Birla Institute of Technology and Science

Jun 2005 - Jun 2009  
**Bachelor of Engineering Computer Science** at SSN College Of Engineering

CERTIFICATES

Jul 2025 <b>Microsoft Certified: Azure Data Scientist Associate</b> Microsoft	Jul 2024 <b>Microsoft Certified: Azure AI Engineer Associate</b> Microsoft
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Nov 2021  
**AWS Certified Solutions Architect – Associate**  
Amazon Web Services (AWS)

PUBLICATIONS

Jan 2026  
**Prompt-Driven Development Handbook** in BPB Publications

A comprehensive guide to AI-assisted software development covering GitHub Copilot, Cursor, Claude Code, and other AI coding tools. The book provides practical techniques for prompt engineering, code generation, debugging, and advanced patterns including multi-agent workflows throughout the development lifecycle. Designed for software developers, engineering managers, tech leads, and students looking to leverage AI tools effectively while maintaining code quality and best practices in an AI-assisted world.