

Shubham Sarpal

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Portfolio: <https://shubhamsarpal.com/>

Professional Summary

Full-Stack Software Engineer with 7+ years building web and API platforms across .NET/C# and Python. Hands-on experience with ASP.NET Core, Blazor, FastAPI, and React, delivering scalable backend services, modern REST APIs, and AI-powered features using LLMs and embeddings. Experienced modernizing legacy systems, optimizing data workflows, and deploying reliable cloud solutions on Azure with automated CI/CD and Agile practices. Focused on reliability, performance, and cross-functional collaboration to consistently ship stable, production-grade solutions.

Technical Skills

Backend & APIs: ASP.NET Core, .NET/C#, Python (FastAPI), REST APIs, Microservices, Entity Framework, LINQ

Frontend: React, Blazor, Razor Pages, JavaScript

AI/GenAI: LLMs, RAG pipelines, Hugging Face, OpenAI/ChatGPT APIs, Embeddings, Vector Databases (ChromaDB)

Cloud & DevOps: Azure, Azure DevOps, CI/CD Pipelines, Octopus Deploy, IIS

Databases: SQL Server, PostgreSQL, Snowflake, Oracle

Testing: NUnit, Moq, Unit & Integration Testing

Reporting & Analytics: Power BI, SSRS, Crystal Reports

Professional Experience

Senior Software Engineer

Pathward Financial Services – Remote

Aug 2022 – Present

- Owned end-to-end delivery of production .NET and Python FastAPI services with React/Next.js frontends, operating workloads on Azure with automated CI/CD and reliable releases.
- Designed and implemented a production RAG platform using Python FastAPI, Hugging Face embeddings, and Chroma vector database, enabling semantic search across enterprise documentation and improving data discovery performance by 25%.
- Translated business and compliance requirements into production-ready GenAI solutions, partnering with stakeholders, data science, and cloud teams to deliver secure, enterprise-ready AI features.
- Improved LLM response quality by optimizing document chunking, top-K retrieval, and similarity scoring, delivering more relevant and consistent answers while reducing hallucinations.
- Optimized AI workflows through prompt tuning, retrieval orchestration, and model execution strategies, lowering latency and operating costs while maintaining accuracy in production.
- Architected Blazor (.NET) applications and ASP.NET Core REST APIs using Clean Architecture and the Repository Pattern, improving maintainability, testability, and long-term scalability.
- Collaborated with DevOps and cloud teams to design and operate Azure DevOps CI/CD and Octopus pipelines, ensuring predictable, low-risk releases and smooth production rollouts.
- Provided technical leadership across feature delivery, leading design decisions, reviewing and approving pull requests, and mentoring engineers through regular 1:1 coaching to elevate code quality and engineering standards.

Software Developer 2

Lower Colorado River Authority – Austin, TX

Aug 2021 – Aug 2022

- Developed enterprise ASP.NET MVC and Razor Pages solutions with JavaScript and Bootstrap, implementing billing calculation logic and responsive UIs to improve performance, usability, and maintainability.
- Added structured logs, metrics, and tracing with Polaris monitoring and ABAT batch jobs, enabling proactive issue detection and reducing production incidents.
- Tuned Oracle and SQL Server queries using indexing strategies and ADO.NET data access optimizations for large datasets and complex joins, improving API response times and reducing latency by up to 40%.

- Built interactive Power BI dashboards and SSRS (RDL) reports to support energy consumption forecasting and operational metrics, enabling data-driven decisions and reducing manual reporting effort by 30%.
- Reduced release risk by implementing NUnit and Moq unit tests for service-layer logic and calculation workflows, catching regressions early and ensuring reliable deployments through CI/CD automation.

Software Developer

St. Joseph Indian School – Sioux Falls, SD

May 2019 – Jul 2021

- Delivered full-stack web applications using ASP.NET WebForms, MVC, .NET Core, and Razor Pages with SQL Server, supporting donor and student management systems and improving release speed, stability, and data reliability in production.
- Structured ASP.NET Core REST APIs using SOLID principles and standardized data access with Entity Framework and LINQ, reducing coupling and making easier to test, extend and maintain.
- Automated SSIS ETL pipelines to validate, transform, and automatically move processed files across network staging and archive drives upon package completion, reducing manual handling by 50% and improving data reliability.
- Translated compliance requirements into SSRS and Crystal Reports dashboards and supporting database designs, delivering accurate, audit-ready reporting and improved data traceability.
- Migrated legacy MS Access systems to SQL Server with optimized T-SQL scripts, collaborating with offshore teams on data mapping, validation, and deployment to improve performance and simplify long-term maintenance.
- Facilitated story planning, estimation, and retrospectives within a Kanban workflow, improving team alignment and maintaining a consistent feature delivery.

IT Technical Analyst

USAA – San Antonio, TX

Feb 2018 – Apr 2019

- Implemented Python FastAPI services for duplicate transaction detection, exposing REST endpoints for validation and real-time processing, reducing manual reconciliation and improving operational accuracy.
- Managed and optimized PostgreSQL databases, refining schema design and tuning queries to support third-party integrations, reducing data retrieval time by 30% and improving overall system stability.
- Operated IIS deployments in coordination with product managers and engineering teams, planning releases, monitoring production health, and ensuring high availability with low-risk rollouts.
- Implemented authentication and authorization across Python FastAPI and .NET Core applications using JWT tokens and role-based access controls, securing APIs and enforcing protected access to sensitive operations.
- Bridged product and engineering within Agile workflows, translating business goals into technical designs and communicating tradeoffs, risks, and timelines to non-technical stakeholders.

Education

University of Texas at San Antonio

M.Sc. in Electrical Engineering

Jan 2016 – Dec 2017

H.R. Institute of Technology, India

B.Tech. in Electronics

Aug 2011 – Aug 2015

Certifications

Microsoft Certified: Azure Fundamentals (AZ-900)

Published Paper: “Review of Interactive Communication Systems for B2B Services”