

# Narayan Bhattarai

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## Professional Summary

Skilled software engineer with **5+ years of experience** designing and delivering scalable applications across small to large, complex projects using **Java and C#**. Proven ability to analyze requirements, translate business needs into effective technical solutions, and drive features through the full software development lifecycle. Demonstrated strength in building event-driven, microservices-based systems, with a solid understanding of concurrency, distributed system design, and service-oriented architecture.

## Education

### University of South Dakota

Aug 2024 - Dec 2025

MS in Computer Information Science

Relevant Coursework: Computer Vision, Pattern Recognition and Machine Learning, Distributed Systems, Reinforcement Learning, Artificial Intelligence, Information Retrieval

### Tribhuvan University, IOE , Thapathali Engineering Campus

Nov 2014 - Nov 2018

B.E. in Electronics and Communication

Relevant Coursework: Object Oriented Programming, Databases, Discrete Maths, Data Structures and Algorithms, Operating Systems, Computer Networks, Information Retrieval, Image Processing, Advanced Electronics, Embedded System, Microprocessor

## Work Experience

### Imark Pvt. Ltd. Kathmandu, Nepal

Sep 2021 - Jul 2024

#### Full Stack Developer

- Built and maintained **client-server and SOA-based applications** supporting scalable enterprise systems.
- Developed **event-driven microservices** with asynchronous communication using **Kafka**.
- Designed and implemented **REST and SOAP web services** following **object-oriented design principles**.
- Implemented **data access services and persistence layers** for distributed backend systems.
- Contributed to **SaaS and PaaS architectures** enabling cloud-based deployment and scalability.
- Performed **large-scale data processing and analysis** using **Hive and Hadoop ETL pipelines**.
- Built backend services using **Scala** for high-performance data and service workloads.
- Developed and deployed services using **Spring and Spring Boot** with clean, modular design.
- Automated **CI/CD pipelines** using **Jenkins and Kubernetes** to streamline build and release workflows.
- Integrated enterprise systems using **Apache Camel** for reliable message routing and transformation.
- Integrated **Elasticsearch**-based search services to support efficient indexing and low-latency query performance.
- Utilized **Azure Monitor** to track application health, analyze logs and metrics, and troubleshoot production issues.
- Enforced **code quality standards** using **SonarQube** across development workflows.

### Danphe Health Inc. Kathmandu, Nepal

May 2019 - Sep 2021

#### Software Developer

- **Designed and implemented scalable service-oriented and microservices architectures**, enabling loosely coupled, distributed backend systems for enterprise applications.
- **Developed RESTful and SOAP APIs** using object-oriented design principles, with well-defined contracts and documentation via Swagger/OpenAPI to support cross-system integration.
- **Built event-driven and asynchronous backend services**, supporting low-latency, high-throughput communication in distributed environments.
- **Implemented cloud-native solutions across SaaS and PaaS platforms**, supporting scalable deployments, service orchestration, and reliable application delivery.
- **Established CI/CD pipelines** to automate builds, testing, and deployments, improving release reliability and reducing manual effort across environments.
- **Improved backend performance and system reliability**, contributing to **30–40% performance gains** through concurrency optimization, code refactoring, and efficient resource utilization.

## Project Work

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- **Brain Tumor Segmentation:** Implemented MRI-based glioma segmentation using U-Net and Attention U-Net, applying preprocessing and augmentation to achieve high IoU for tumor-focused medical imaging.
- **Reinforcement Learning (BaghChal):** Built an AI game agent using Q-Learning, SARSA, and Expected SARSA, optimizing reward design and state space to improve decision accuracy and convergence speed.
- **Semantic Search System:** Developed a hybrid semantic search engine combining BM25 and dense embeddings, implementing vector similarity search and evaluating performance using Precision@K, Recall, MAP, and nDCG.
- **GastroVision (Medical AI):** Built a deep-learning-based endoscopic image classification system, evaluating models with precision, recall, confusion matrix, and AUROC for clinical reliability.
- **LLM-Powered Proteomics Chatbot:** Developed a domain-specific expert chatbot using a .NET backend, Angular frontend, and a locally hosted LLM to deliver accurate, context-aware scientific responses.

## Technical Skills

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- **Languages:** C#, Java, Python, Scala, SQL, JavaScript, TypeScript
- **Backend & Frameworks:** .NET Core, ASP.NET Core, Web API, Entity Framework, LINQ, Spring, Spring Boot, Hibernate
- **Architecture & Integration:** Microservices, Service-Oriented Architecture (SOA), Event-Driven Architecture, REST, SOAP
- **Cloud & DevOps:** Azure, AWS, Docker, Kubernetes, CI/CD Pipelines, Jenkins, Azure DevOps
- **Messaging & Streaming:** Kafka, RabbitMQ
- **Databases:** SQL Server, PostgreSQL, MongoDB, MySQL, Oracle
- **Testing & Quality:** xUnit, NUnit, TDD, BDD, SonarQube
- **Security:** OAuth 2.0, JWT, Role-Based Access Control, Secure Logging
- **Tools & Platforms:** Git, Maven, IIS, Linux, Postman, Jira, Confluence

## Awards and Certificates

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- **Star Performer:** Star Performer of the Year 2023 at Imark Pvt. Ltd.