

Irfan Deen

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EDUCATION

National University of Singapore

Aug 2023 – May 2027

Bachelor of Engineering in Computer Engineering, Minor in Mathematics

Relevant Coursework: Software Engineering & OOP (A+), Data Structures and Algorithms (A+), Intro to Machine Learning (A+), Computer Organisation (A), Linear Algebra (A), Digital Design (A+)

Dean's List

Grade: 4.67 / 5.00 (First Class Honours)

EXPERIENCE

Software and AI Engineer

Jan 2026 – May 2026

Seagate Technology

- Built an enterprise RAG platform ingesting 2M+ lines of code and 10,000+ page documents, using AST parsing, OpenSearch hybrid retrieval, contextual chunking, metadata filters and ColBERT reranking, at sub-1s E2E latency.
- Designed SeaAgent, an MCP-integrated coding agent extending GitHub Copilot with a ReACT loop and contextual query rewriting, leveraging full codebase and document context for contextual code generation
- Built SeaWiki, an automated documentation pipeline generating source-cited, DeepWiki-style docs via a generator-adversary agent pattern, kept fresh by listening to GitLab commits and PRs
- Engineered Streamable HTTP SSE endpoints for real-time LLM chat responses with Express + React
- Containerized and deployed the platform on Kubernetes with Docker, using MinIO for S3-compatible object storage
- Architected a Java (Spring Boot) Kafka REST API proxy and gateway with consumer pooling, multi-threading, and pipelining, validated and benchmarked via JUnit and JMeter
- Secured enterprise APIs using SSO, JWT authentication, and rate limiting for distributed Kafka cluster access

Software Engineer

May 2025 – Aug 2025

Keysight Technologies

- Developed a customized stochastic gradient descent (SGD) algorithm in Python to traverse large search spaces arising from high-precision instrumentation measurements, exposed via a gRPC API
- Reduced board placement optimization time from weeks to minutes by replacing exhaustive search over a several-billion-point search space with a custom SGD-based approach
- Designed Protocol Buffer (protobuf) schemas to define structured, versioned message contracts for the gRPC service, ensuring efficient serialization and stable client-server contracts as the API evolved
- Containerized the gRPC API into a dedicated ML microservice, supporting CI/CD pipelines with Docker and Kubernetes

Data Engineer

Feb 2021 – Feb 2023

Singapore Police Force

- Reduced Azure cloud database workload by implementing a pre-fetch caching system for police data terminals
- Developed a Java (Spring Boot) application to automate data entry, cleaning, and verification
- Built a Flutter and Dart mobile application for deployment to troops, enabling field data entry during patrol
- Automated manual Excel-centric quarterly data analytics and visualization using Scikit-learn, Pandas and R

TECHNICAL SKILLS

Languages: Java, Python, C/C++, SQL (Postgres, OracleDB), JavaScript

Frameworks: Spring Boot, JDBC, FastAPI, Flask, REST, gRPC, protobuf, Express, React, Node.js, Zustand, Flutter

AI: RAG, MCP, FastMCP, GPT-4o, Docling, OpenSearch, Pinecone

Infrastructure: Docker, Kubernetes, Apache Kafka, Jenkins, GitHub Actions, Git, MinIO

Cloud: AWS, Azure

Testing: JUnit, Jest, Playwright, JMeter, Postman

AWARDS

Seagate Technology – Certificate of Excellent Performance (2026)

National Olympiad of Informatics – Silver Award (2019)

SEAMEO Southeast Asian Research Congress – Singapore National Team, Best Poster Award (2018)