

# GURMILAN SINGH

Full-Stack Web Developer | Software Engineer | React · JavaScript · Node.js · SQL · C#.NET

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## PROFESSIONAL SUMMARY

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Final-year Computer Engineering student and software developer with 2+ years of professional experience building and maintaining production full-stack applications. Primary developer of an internal business platform, with end-to-end responsibility spanning frontend and backend development, relational database design, authentication, deployment, maintenance, and user support. Experienced with C#.NET, React, Node.js, SQL, automation, infrastructure support, and AI/API integrations.

## PROFESSIONAL EXPERIENCE

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### Software Developer — C#.NET & Full-Stack Web

Phema S.r.l. · Modena, Italy · 09/2023 – Present

React · JavaScript · Material UI · Node.js · Express · SQL Server · Jest · C#.NET · systems administration

- Serve as primary developer of a production full-stack internal business application supporting shared operational workflows and role-based access.
- Develop and maintain modules for operational records, project coordination, scheduling, time management, reporting and administrative workflows.
- Own end-to-end delivery across requirements analysis, frontend and backend development, relational database design, authentication, testing, deployment, maintenance and user support.
- Helped replace disconnected legacy tools and manual processes with a centralized web application and relational data model.
- Continuously deliver production features in response to internal requirements, covering implementation, testing, release, defect resolution and ongoing support.
- Contribute to the development and maintenance of the company's commercial C#.NET software.
- Built a C#.NET client-server licence-management component supporting licence validation and controlled concurrent use.
- Support the software's server and virtualized operating environment, diagnosing application and infrastructure issues.

## SELECTED PROJECTS

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### Opssemble Lite — AI-Assisted Event Operations Platform

React 18 · Vite · Node.js · Fastify · AI APIs · JWT · REST API · Nodemailer · MySQL · Google OAuth 2.0

- Built a full-stack event operations platform for multi-user planning, area coordination, task tracking, exception management, readiness scoring, reporting, and scoped QR staff access.
- Designed a modular Fastify/MySQL REST API using a routes/controller/service/repository/schema structure across authentication, events, members, areas, tasks, exceptions, readiness, reports, activity logs, QR access, AI, templates, settings, and admin modules.
- Implemented secure authentication with email verification, password reset, Google OAuth 2.0, JWT-backed HttpOnly cookies, bcrypt password hashing, generic auth errors, failed-login throttling, and account lockouts.
- Designed and enforced server-side RBAC with four permission tiers — owner, coordinator, operator, and viewer — across events, areas, tasks, exceptions, and protected API routes.
- Built QR-code area access using revocable SHA-256-hashed tokens, allowing on-site staff to access scoped event areas while preserving backend permission checks.
- Integrated a pluggable AI assistant using hosted Groq, supporting task/exception drafting, event scaffolding, gap checking, readiness explanations, blocker summaries, event Q&A, and retrospective drafting.
- Added production-style engineering features including self-healing MySQL migrations, activity audit logs, readiness scoring, CSV/print reports, transactional emails, upload validation by magic bytes, Helmet security headers, CORS policies, rate limiting, and parameterized SQL queries.

## Gurmat Saanj — Full-Stack Web App with Remote Control System

React · JavaScript · Vite · Node.js · Express · BaniDB · Web Speech API ·

- Built a full-stack app for real-time Punjabi speech recognition with **fuzzy Shabad search**, confidence scoring, automatic line tracking, bilingual display, configurable projector display.
- Implemented mobile session access through **QR-code scanning** or a four-digit connection code, allowing authorised users to **remotely control** the projector presentation from a phone.
- Implemented **real-time synchronisation** between the main application, projector view, and connected mobile devices.
- Hardened the API with **Helmet, CORS, rate limiting, and input validation**.

## Azure VM Provisioning Automation

Bash · Azure CLI · Linux (Ubuntu) · SSH · University project

- Wrote **Bash (.sh) scripts to automate provisioning of Ubuntu virtual machines on Microsoft Azure** over SSH, replacing a manual setup process with a repeatable, scripted workflow.

## Smart Bin — IoT Prototype

Arduino

- Prototyped a smart waste bin with sensor- and motor-driven automatic lid opening that transmits sensor data to a companion mobile app.

## SIRD Epidemic Simulator — Java Desktop Application

Java 17 · JavaFX · Maven · FXML · Concurrency

- Developed an agent-based epidemic simulator with configurable population, infection radius and probability, recovery time, and mortality rate, including pause, resume, quarantine and reset controls.
- Implemented a background simulation engine, real-time S/I/R/D visualisation, moving agents with boundary collision handling, and CSV data export using a model–engine–controller architecture.

## TECHNICAL SKILLS

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**Languages:** C#, TypeScript, JavaScript, Java, Python, SQL, C, Bash

**Backend:** ASP.NET Core, .NET, Entity Framework Core, Node.js, Express, Fastify, REST APIs, JWT, RBAC

**Frontend:** React, Vite, HTML5, CSS3, Material UI, React Router, TanStack Query

**Databases:** SQL Server, MySQL, relational database design, migrations

**Cloud/DevOps:** Azure, Azure CLI, Docker, Linux, SSH, VMware ESXi, Git, GitHub, Postman

**AI & Integrations:** LLM API integration, Ollama, Groq, Google OAuth 2.0, Web Speech API

## EDUCATION

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### BSc in Software Engineering - Laurea in Ingegneria Informatica

University of Modena and Reggio Emilia (UNIMORE) · 2023 – Present · Expected December 2026

Final year. Core areas: programming, algorithms, data structures, databases, networks, operating systems, software engineering, web technologies, and machine learning / AI.

### Diploma in Computer Science and Telecommunications

ITIS Enrico Fermi, Modena · 2018 – 2023

## CERTIFICATIONS & PROFESSIONAL DEVELOPMENT

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- Cisco Certificate — Cisco Networking Academy
- The Web Developer Bootcamp (74 hrs) — Udemy
- Self-directed online coursework in C#, C, Java, Python, and React

## LANGUAGES

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- Italian: Native · Punjabi: Native · English: C1 Advanced · Hindi: Advanced

**Additional information:** Italian driving licence, category B

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