

# Richard Mackey

Software Developer

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[Github](#) [LinkedIn](#)

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## Professional summary

Full-stack developer with hands-on experience building web applications using React frontends, REST APIs, and both SQL and NoSQL databases. Implemented CI/CD pipelines, comprehensive testing strategies, and JWT authentication across multiple production deployments. Background as a PhD chemist and Head of Chemistry provides strong analytical problem-solving skills and the ability to communicate technical concepts clearly. Seeking a software engineering role within an agile team to contribute to scalable applications whilst developing expertise in cloud platforms and container orchestration.

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## Technical skills:

Languages: JavaScript, Java, Python, HTML/CSS, SQL

Frameworks/Libraries: React, Spring Boot, Express, Bootstrap

Tools: Git, PostgreSQL, MongoDB, JWT, REST APIs, GitHub Actions, CI/CD

Testing: JUnit 5, Mockito, Integration Testing, Unit Testing, Test-Driven Development (TDD)

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## Projects overview: all projects can be viewed on GitHub and my portfolio website

**Weather app:** Full-stack weather application using OpenWeather API with React frontend and Spring Boot backend. Stores historical data in PostgreSQL for selected locations. Containerised with Docker and deployed using CI/CD pipelines with GitHub Actions. Primary challenges: balancing automated data collection frequency and retention periods against PostgreSQL storage limits for historical analysis.

**Poise PMS:** Full-stack project management system built with Spring Boot, JDBC, PostgreSQL, and Thymeleaf. Evolved from console application to web-based platform supporting concurrent users. Implemented comprehensive testing with JUnit 5 and Mockito, integrated CI/CD pipeline with GitHub Actions ensuring tests pass before deployment to Render. Primary challenges: refactoring to separate business logic from presentation layer and implementing professional testing practices.

**iTunes search web app:** Full-stack application integrating iTunes Search API. Built React frontend with localStorage-based favourites and Express.js backend with JWT-secured REST endpoints. Implemented responsive filtering using Bootstrap - collapsible sidebar for desktop, dropdown for mobile. Primary challenges: iTunes API returned inconsistent media type data requiring client-side parsing and filtering logic, and designing JWT security for stateless favourites without user authentication system.

**Event planner:** Event management application using React with Context API for centralized state and localStorage for data persistence. Built multi-page interface with React Router (list, create, edit, detail views) and complex forms using Formik with regex-based email/password validation and date/time constraints. Primary challenges: synchronizing state across Context API, localStorage, and form-level state without backend, and implementing professional form validation patterns for client-side CRUD operations.

**Raspberry Pi:** Environmental Monitoring Dashboard using Python, Flask and JavaScript. A full-stack IoT application integrating Raspberry Pi hardware with BME680 sensor for automated data collection. Built RESTful API and responsive web interface with Chart.js for real-time environmental data visualisation. Deployed using systemd services with automatic restart and logging.

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## HyperionDev May 2025 - present: Full Stack Web and Software Engineering Course

- Completed full-stack development bootcamp with hands-on projects
- Built responsive web applications using Java, React, Spring Boot, and Express
- Implemented JWT authentication, RESTful APIs, and database integration
- Practiced Git workflows and code documentation standards

## **Full time science teacher September 2011 - May 2025**

Collaborated with departmental teams of 10+, updating curricula and resources for 1,000+ students annually. Improved exam outcomes across all ability ranges whilst developing strong communication skills with students, parents and colleagues.

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## **Education**

PhD in Chemistry, University of Liverpool September 2007-January 2011

Researching layered, inorganic compounds and their applications in catalysing organic chemical reactions.