Asmail Abdulkarim

SOFTWARE ENGINEER

Software engineer with a master's degree in computer science who enjoys turning ideas into solutions and exploring creative projects across web, mobile, and AI.

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LANGUAGES

Swedish	Fluent
English	Fluent

SKILLS

Backend	Node.js, Python, Java, C#, TypeScript, NestJS
Frontend	React, Next.js, Svelte, JavaScript, Tailwind CSS, Bootstrap
Mobile	Android, Kotlin, Jetpack Compose
AI & Data	Python, OpenCV, PyTorch, scikit-learn, NumPy, OpenAI
Testing & DevOps	Docker, Playwright, Vitest, Git, Linux, Nginx

PROJECTS

eridu-tech (@daiso-tech/core)

2024 — Ongoing

Co-founder of eridu-tech, an open-source backend foundation toolkit for TypeScript.

- Co-founded eridu-tech, an open-source backend foundation toolkit for TypeScript, to stop teams re-building the same backend capabilities for every project.
- Implemented a dependency-injection framework from scratch and validated the dependency graph, covering it with comprehensive unit tests.
- Delivered a reusable, tested DI component that now anchors the toolkit's backend foundation.

Open-source backend toolkit **DI framework from scratch** **Comprehensive unit tests**

TypeScript Node.js Unit Tests Integration Tests Adapter Pattern Event Bus Clean Architecture

Switch Challenge Practice Site

2024 — Present

Creator and maintainer of switch-challenge-practice.org, an aptitude-test practice platform.

- Built and maintain switch-challenge-practice.org, a full-stack TypeScript/Svelte platform for practising aptitude tests, backed by a Cloudflare D1 database.
- Integrated betterAuth, oRPC, Drizzle, Storybook, Playwright, zod, tailwindcss, sqlite, vitest, svgdotjs and jsonld into one cohesive product.
- Grew the platform to 2000-3000 unique visitors each month.

2000-3000 monthly visitors **Fullstack TypeScript/Svelte app**

TypeScript Svelte SvelteKit Cloudflare D1 Drizzle ORM Playwright Vitest Storybook Tailwind CSS

Interval Training App

2026 — Present

A customizable interval-training app for Android.

- Designed an Android interval-training app in Kotlin with a Jetpack Compose UI built around per-user customization.
- Implemented the business logic and a background media-playback service so sessions keep running reliably.

Kotlin | Android | Jetpack Compose

Surveillance System

2025 — Ongoing

A home surveillance system with door alerts and real-time face detection.

- Engineered a home surveillance system on Raspberry Pi hardware that detects when the front door opens, pushes a notification, and starts live recording.
- Built the pipeline in Python, TypeScript, Kotlin, and C with Node.js, OpenCV, Linux, Nfty, Mediamtx, Android, and FFmpeg for real-time face detection.
- Enabled users to jump back in time or directly to detected-face timestamps in the Android app.

Real-time face detection | **Raspberry Pi based**

Python | OpenCV | Raspberry Pi | FFmpeg | Linux | Android | Node.js

Puzzle Solver for 'Unblock Me'

2023 — 2024

An Android app that solves 'Unblock Me' puzzles and guides the user to the solution.

- Developed an Android app in Kotlin and Python that solves 'Unblock Me' boards in the fewest steps and guides the user through the solution.
- Integrated a YOLOv8s detection model (Ultralytics), PyTorch-Android, the MediaProjection API, and Chaquopy to read and solve live boards.
- Automated block movement on rooted devices for fully hands-free solving.

Kotlin | Python | Android | OpenCV | PyTorch | YOLO | scikit-learn | NumPy

C++ Backend for 'Unblock Me' Puzzle Solver

2023 — 2024

A C++ rewrite of the puzzle solver's Python backend for higher efficiency.

- Rewrote the puzzle solver's Python backend in C++ for higher efficiency and integrated it through JNI.
- Standardized the build with CMake and enforced correctness with Catch2 unit tests.
- Shipped a faster native solver backend that is fully unit-tested at the integration boundary.

C++ via JNI | **CMake + Catch2**

C++ | C | CMake | Catch2 | Unit Tests

CERTIFICATES

Azure Fundamentals (AZ-900)

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Microsoft

EDUCATION

LTH, Lund University 2016 — 2021

Master of Science · Computer Science

Master's degree in Computer Science with a primary focus on software engineering and a secondary focus on machine intelligence. Studied language technology, compilers, constraint programming, artificial intelligence, machine learning, and image analysis.

Felipe Gavilán, Udemy 2024

React 19 and ASP.NET Core 9 · Professional course

Course in ASP.NET Core 9 with React as the frontend.

Kristianstad University 2023

Programming in C++ · University course (7.5 hp)

Programming course in C++. Course points: 7.5 hp.

Kristianstad University 2020

Mobile App Programming · University course (7.5 hp)

Mostly Android programming. Course points: 7.5 hp.