

# Ahmed Ben Khalifa

## Software Engineer

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## SUMMARY

Full-stack software engineer with 5 years of experience, 4 of them on an AI-powered language-learning platform with 40,000+ learners. Comfortable across the whole product: React/TypeScript web, Python/FastAPI backend, React Native mobile, and Kubernetes. Strongest in real-time systems (WebRTC/LiveKit) and AI speech pipelines.

## EXPERIENCE

### SpeakDuo, Software Engineer

Remote | Aug 2022 – Present

- Build features end to end across the web app, REST API, and mobile app for a language-learning platform with 40,000+ registered learners: live classes, lessons and quizzes, gamification, and subscriptions. Localized into 3 languages including RTL Arabic.
- Built a real-time video classroom on LiveKit (WebRTC) with host moderation, camera verification, attendance tracking, and an in-call AI assistant. It has hosted 6,500+ live group classes to date.
- Built B2B products for two universities, UNSW and UCL, as the sole developer: a student app for AI-graded speaking practice and a faculty admin app with SSO, all from one monorepo with shared packages.
- Developed two AI assessment products: a real-time voice interview agent and a speech-feedback pipeline that has graded 300,000+ recordings (45,000+ hours of learner speech) against CEFR proficiency levels.
- Rescued and optimized that pipeline: fixed failure modes that had stranded 158,000+ recordings (55% of all-time volume), parallelized per-error processing (7x), and batched pronunciation scoring (up to 200x). This cut median feedback time from 16 minutes to about 1 minute, and p90 from 29 to under 2 minutes.
- Re-architected real-time presence for live classes so the WebRTC server (SFU) is the single source of truth, and rolled it out safely in shadow mode. This eliminated the race conditions that dropped users mid-session.
- Built the platform's original web app (React, Material-UI, Redux), then rebuilt it as a server-side-rendered React app, which raised the Lighthouse SEO score from 63 to 92. Also shipped a blog pipeline that publishes Notion pages as MDX.
- Sole engineer on the iOS/Android app: everything from live class calls and in-app subscriptions (RevenueCat) to release pipelines for the App Store and Play Store.
- Own CI/CD and infrastructure: Docker images built in GitHub Actions and deployed to Kubernetes with ArgoCD (GitOps), after migrating the platform off Azure App Service. Handle production monitoring (Sentry) and incident response.

**Technologies:** TypeScript, React, TanStack Start (SSR), Tailwind CSS, React Native (Expo), Python, FastAPI, PostgreSQL, Celery, Redis, LiveKit/WebRTC, Stripe, Docker, Kubernetes, AWS, Azure

### Digital2Value, Full Stack Developer

Sousse, Tunisia | Jun 2021 – Aug 2022

- Owned the whole stack of the consultation platform: frontend, backend, real-time, and Azure deployment.
- Built the product's core: an interactive mind map that walks companies through a management consultation one node at a time, with AI-generated questions personalized to each stage.
- Built the reporting flow that turned a finished consultation into a client-ready report, with export and shareable links.
- Engineered the real-time sync: debounced autosave over WebSockets, with reconnect and resync so a dropped connection never lost work.

**Technologies:** React, TypeScript, JavaScript, Node.js, Express, MongoDB, Zustand

## EDUCATION

ESPRIT Higher School of Engineering, Engineering degree in Web Development

Sep 2016 – Jun 2021

## SKILLS

**Languages:** TypeScript, JavaScript, Python, SQL, GraphQL, HTML, CSS

**Frontend:** React, Next.js, TanStack (Start, Router, Query), Redux, Zustand, Tailwind CSS, Vite

**Backend:** FastAPI, Node.js, Express, PostgreSQL, MongoDB, Redis, Celery, REST APIs, WebSockets, WebRTC

**Mobile:** React Native, Expo (EAS), App Store and Play Store releases

**Cloud & DevOps:** Docker, Kubernetes, Helm, ArgoCD (GitOps), GitHub Actions, AWS, Azure, Sentry

**Spoken:** English (Professional), French (Intermediate), German (Basic), Arabic (Native)