

**Jonathan Sansó** - Ssr. Full-Stack Developer (React / Next.js / NestJS) - AI Engineering (Applied NLP, OCR & Speech-to-Text) - Python Data Pipelines (Pandas) - Higher Degree in Programming

**Frontend:** React, Next.js, TypeScript, Tailwind, Bootstrap - **Backend:** NestJS (Node.js), FastAPI - **AI / Data Processing:** Pandas (ETL), OCR (Tesseract), Speech-to-Text (Whisper), NLP pipelines - **Databases:** MySQL, PostgreSQL, MongoDB (Prisma ORM) - **DevOps & Infrastructure:** Docker, NGINX, Debian Linux (self-managed) - **Tooling:** Git, GitHub

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## Professional Experience

### 1. Argentine Federal Penitentiary Service (Jan 2024 - Present) [Private links]

#### a) Institutional Platform for Complex Events - Frontend & Backend + AI Engineering

- **Lead developer** of a **national-scale** internal platform across multiple penitentiary units.
- **Designed and implemented** an **AI microservice (Python + FastAPI)** for **OCR and NLP**, enabling **automatic text extraction** from **images, scanned PDFs** and **audio files (speech-to-text)**, with **smart field auto-completion inside** institutional forms.
- Built **OCR pipelines** using **Tesseract** with **custom preprocessing**, **language models**, **noise reduction** and **text reconstruction** (de-hyphenation, whitespace normalization).
- **Developed OCR pipelines** in **Python (FastAPI + Tesseract)** to **extract full text** from **institutional documents**, and built an **NLP summarization** module that **produces humanized, condensed summaries** with **configurable length**. Added **security classification (LOW/MID/HIGH)** and **basic inconsistency detection**.
- **Integrated frontend AI** actions in **Next.js**: “**Analyze with AI**”, **auto-populated fields**, and **human-review workflows**.
- **Replaced manual Excel workflows** by building **Python (Pandas) ETL pipelines** to **standardize large institutional datasets**: **header normalization**, **facility code mapping**, **ISO-8601 date conversion**, **document type/ID parsing**, and **export of clean files** ready for **automated MySQL imports** via **NestJS/Prisma**.
- **Dynamic forms** with **complex validations**, **modals**, **file uploads**, and **image croppers**.
- **Interactive maps (Leaflet/Google Maps)** for **events** and **geospatial zones**.
- **Automated PDF/Excel/Word reports** with **statistical charts** and **temporal-spatial filters**.
- **WhatsApp integration** for **alerts** and **coordination**.
- **Secure architecture**: **Next.js**, **Tailwind**, **NestJS**, **Prisma**, **MySQL**, **Docker**, **NGINX** on **Debian**; **Auth0 2FA**, **CSRF**, **sanitization**, **rate limiting**.
- **Fully dockerized** with **automated backups** on a **self-managed Linux environment**.

#### b) Public Web Verification Portal - Frontend & Backend

- **Public extension** of the **Institutional Platform for Complex Events**, providing **secure document verification** for **national and international organizations**.
- Verifies reports via **CV + CRC validation (HMAC-SHA256)** and issues **10-minute JWT view grants (HS256)** with **server-controlled, time-limited access**.
- **Anti-exfiltration controls**: **disables copy/paste**, **print**, and **captures**; **adds recipient watermark overlay**.
- Renders **TipTap JSON → HTML** with **justified text** and **institutional formatting**.
- Signed push **API** with **HMAC**, **idempotency keys**, **clock-skew validation**, and **SHA-256** file integrity checks.
- Stack: **React (Vite)**, **TypeScript**, **Tailwind**, **NestJS**, **Prisma**, **MariaDB**, **Docker/Compose**, **NGINX**, **Helmet/CORS**.

#### c) Ticketing System - Frontend & Backend

- Internal **IT ticketing** platform in **PHP + MySQL** with **Google SSO**.
- Incident intake, assignment, status tracking, and audit trail.
- Streamlined maintenance **workflows** with **reliable, searchable history**.

### 2. VirtuaState - Frontend (May 2022 - Jul 2022)

- Built a responsive portfolio site for a **VR/AR studio (HTML5/CSS/JS, mobile-first)**, implementing **SEO** and **performance optimizations** to improve **visibility** and **load speed**. Live: [www.virtuastate.net](http://www.virtuastate.net)

## Education:

### 1. Higher Degree in Programming - Teclab (Aug 2022 - Aug 2024)

**Subjects:** **Programming Logic**, **SQL Databases**, **Web Development (JavaScript, PHP)**, **UX**, **AWS Practitioner**, **Project Management**, **Mobile Development (Java)**, **Configuration Management**, **Web Integrations**, **Information Systems Design**, **Interface Development**, **Time & Work Organization**, **People Management**, and **Decision-Making & Problem Solving**.

### 2. Frontend - Backend - CoderHouse (Jan 2022 - Mar 2023)

Delivered all projects on time using **HTML5**, **EJS**, **CSS**, **SASS**, **React**, **Node.js**, **MongoDB**, **Express**, and **GraphQL**, as seen at <https://react-e-commerce-j-sanso.vercel.app>