

# CARLOS MANUEL CEJAS

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## EDUCATION

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### Trinity College Dublin

BSc/MSc Computer Science (Integrated Masters)

2025 – 2030

## EXPERIENCE

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### Path Planning Engineer

Formula Trinity – Autonomous Racing Team

Oct 2025 – Present

- Develop and refine path-planning algorithms in Python for the autonomous race car subsystem
- Analyze and improve ROS-based codebase; test algorithms in Gazebo simulations
- Optimize racing lines for higher speeds and reduced lap distance

### Web Developer

Parqt – Startup

May 2024 – Sep 2024

- Led development of company website, building new features and optimizing existing systems
- Consulted on operations, branding, and marketing strategies for early-stage growth

## PROJECTS

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### Sol-450 — Hackathon Entry

START Hack St. Gallen

March 2026

- Built a full-stack multi-agent greenhouse simulator for long-duration Mars missions; players configure a colony, run AI-managed agriculture, and track crew survival across 450 sols.
- Orchestrated Strands AI agents on Amazon Bedrock with an MCP knowledge base for autonomous crop and resource management; DynamoDB for session state persistence.

Tech: React, Three.js, FastAPI, Python, AWS Bedrock, DynamoDB | [GitHub](#) | [Demo Video](#)

### Lockup — Co-Founder and CEO

lockup-app.com

February 2026– Present

- Co-founded a phone-free session management platform for iOS and Android, targeting schools as a software alternative to Yondr pouches; teachers share a link or QR code, set a duration and optional breaks, and students are locked out of other apps until the session ends.
- Leverages native iOS Screen Time (Family Controls) and Android focus APIs for real enforcement; real-time layer powers in-session chat and host announcements via APNs and FCM.
- Selected for Alpine Valley, a competitive European early-stage founder program.

Tech: React Native, Swift, Kotlin, Firebase | [lockup-app.com](https://lockup-app.com) | [alpine-valley.com](https://alpine-valley.com)

### Pollen Cast — Hackathon Entry

Hack Europe

February 2026

- Built a multimodal allergy health-check app (React Native/Expo) combining eye photos, voice recordings, and GPS location to differentiate allergic from viral/bacterial conjunctivitis.
- Architected a three-model inference pipeline: Gemini 2.5 Flash for computer vision on eye images, Google Pollen API for real-time environmental allergen data, and a Python/librosa microservice for acoustic vocal biomarker analysis.

Tech: React Native (Expo), Node.js, Express, Gemini API, Supabase, Python (librosa) | [GitHub](#) | [pollen-cast.vercel.app](https://pollen-cast.vercel.app)

## SKILLS

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### Languages:

Python, Java, JavaScript, TypeScript, HTML/CSS, SQL, Bash

### Frameworks/Libraries:

React, React Native (Expo), FastAPI, Node.js, Express, Vite, ROS, librosa

### Tools & Platforms:

Git, Linux (Ubuntu/Arch), AWS (Bedrock, DynamoDB), Gazebo, Vercel, Supabase, Docker

### AI & APIs:

Claude API, Gemini API, Google Pollen API, HL7 FHIR R4, SNOMED-CT

### Spoken Languages:

English (Native), Spanish (Native)

## ACTIVITIES & ACHIEVEMENTS

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**Trinity:** Computer Science Society, Formula Trinity, Philosophical Society, Tennis Society

**High School:** Science Olympiad (Selected), NHS Member, DECA 2nd Place MTDM, Youth & Government Treasurer