

# HECTOR EDUARDO TOVAR MENDOZA

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## EDUCATION

<b>Tecnológico de Monterrey</b> <i>Bachelor of Engineering in Robotics and Digital Systems</i> <ul style="list-style-type: none"><li><b>Relevant Coursework:</b> Data structures and algorithms, Object-oriented programming, Computational architecture</li><li><b>Cumulative GPA:</b> 90/100</li></ul>	<b>Expected June 2027</b> Monterrey, Nuevo León
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## WORK EXPERIENCE

<b>Software Engineer</b>   <i>Ventologix</i>   React, Next.js, FastAPI, MySQL, Docker, GCP, Langraph, OpenAI <ul style="list-style-type: none"><li>Architected a proprietary full-stack ecosystem using <b>React (Next.js)</b> and <b>FastAPI</b>, delivering real-time visualization that served as a <b>key market differentiator</b> instrumental in closing <b>40% of total revenue</b>.</li><li>Engineered a database optimization strategy by implementing temporal partitioning on monolithic <b>MySQL</b> tables, which <b>reduced stored procedure execution time by 90%</b> and accelerated query lookups.</li><li>Developed and deployed a containerized <b>AI Analytics Agent</b> on <b>GCP Compute Engine</b> using <b>Docker</b> and <b>Cloudflare Tunnels</b>, enabling secure, automated predictive insights for client data.</li></ul>	<b>April 2025 – Present</b>
<b>Front-End &amp; Mobile Developer</b>   <i>Einter</i>   React, Kotlin, Firebase, MySQL <ul style="list-style-type: none"><li>Developed a modular <b>React + Vite</b> dashboard for administrative staff to generate sales orders and track live inventory, replacing legacy paper-based tracking.</li><li>Created a companion <b>Kotlin</b> mobile app for warehouse staff, implementing barcode scanning to validate stock entries against the web dashboard's records in real-time.</li><li>Implemented database logic to register critical inventory events including <b>stock entries, exits, and spoilage</b>, ensuring end-to-end traceability of products.</li></ul>	<b>July 2025 – Present</b>

## PROJECTS

<b>FrEDie: AI/AR Virtual Assistant</b>   <i>Research with MIT</i>   LangGraph, Python, Claude, Docker, Azure <ul style="list-style-type: none"><li>Developed a <b>RAG-based adaptive agent</b> using <b>LangGraph</b>, implementing <b>conversation summarization</b> and structured persistence to optimize context retention and minimize database latency.</li><li>Implemented an <b>adaptive tutoring engine</b> with <b>Human-in-the-Loop</b> workflows, dynamically adjusting content complexity based on <b>learning styles</b> while validating inputs via interactive questionnaires.</li><li>Engineered a scalable, Dockerized backend on <b>Azure</b> to orchestrate the full lifecycle, utilizing <b>Cloudflare Tunnels</b> to securely route traffic between web clients and the <b>Claude AI</b> model.</li></ul>	<b>November 2025 – Present</b>
<b>RoBoCupido: AI Matchmaking Agent</b>   <b>T3 Stack, TypeScript, Gemini Pro, PostgreSQL, TypeScript</b> <ul style="list-style-type: none"><li>Engineered an interactive dating platform using the <b>T3 Stack (Next.js, tRPC)</b>, replacing static sign-up forms with a conversational AI agent that interviews users to determine compatibility.</li><li>Built a stateful <b>information extraction pipeline</b> using Gemini Pro and TypeScript, designing an agentic workflow that dynamically retrieves user preferences (e.g., relationship type, hobbies) to generate structured "About Me" summaries.</li><li>Implemented a matching algorithm that utilizes AI-generated user profiles to pair candidates, presented as a featured project for the university Valentine's Day showcase.</li></ul>	<b>January – February 2026</b>

## RESEARCH

<b>RoBorregos Team</b> <i>Research &amp; Development Member</i> <ul style="list-style-type: none"><li>Engineered a hybrid pose analysis pipeline utilizing <b>MediaPipe</b> for landmark extraction, <b>SVMs</b> for static state classification, and <b>LSTMs</b> for temporal sequence modeling, achieving <b>96% accuracy</b> in dynamic gesture recognition.</li><li>Optimized Visual <b>Re-Identification (ReID)</b> architectures to address the "persistent identity" challenge, maintaining <b>93% tracking consistency</b> across heavy occlusions and crowded environments.</li><li>Spearheaded research on <b>monocular depth decomposition</b> to synthesize high-fidelity 3D point clouds of <b>transparent objects</b>, enabling an <b>xArm6</b> robot to autonomously execute complex grasping tasks.</li></ul>	<b>November 2024 – Present</b> Tecnológico de Monterrey
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## TECHNICAL SKILLS

**Languages:** Python, C++, C, Kotlin, TypeScript, JavaScript, SQL, C#, MATLAB  
**AI, CV & Robotics:** PyTorch, TensorFlow, OpenCV, YOLO, MediaPipe, Face Recognition, LangGraph, OpenAI API, Claude AI  
**Web & Backend:** React, Next.js, FastAPI, Node.js, gRPC, tRPC, RESTful APIs, GraphQL, Prisma, Tailwind CSS  
**Cloud & DevOps:** AWS, Azure (Services), GCP, Docker, Vercel, Linux/Unix, Git, GitHub  
**Databases:** PostgreSQL, MySQL, Supabase  
**Spoken Languages:** Spanish (Native), English (B2), French (B1)

## AWARDS & LEADERSHIP

<b>Sole DigiKey Ambassador</b>   <i>Only ambassador in LATAM, technical content &amp; outreach</i>	<b>Present</b>
<b>1st Place, International LARC Open Robotics</b>   <i>Top autonomous robotics performance</i>	<b>Nov 2025</b>
<b>2nd Place, HackMTY</b>   <i>Banorte track, 400+ competitors</i>	<b>Oct 2025</b>
<b>1st Place, National LARC Open Robotics</b>   <i>National robotics champion</i>	<b>Apr 2025</b>
<b>1st Place, ShellHacks</b>   <i>Waymo track</i>	<b>Sep 2024</b>