

# ALEJANDRO (ALEX) BACALLAO

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## PROFESSIONAL SUMMARY

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Results-driven Software Developer with 4+ years of experience delivering full-stack solutions across embedded systems, healthcare technology, and industrial automation. Skilled in containerizing applications with Docker, refactoring legacy codebases, and collaborating on cross-functional teams. Proficient in multiple programming languages and development environments. Trilingual (English, Spanish, German).

## TECHNICAL SKILLS

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**Languages:** C, C++, C#, Python, Java, JavaScript, TypeScript, Bash, PowerShell, LUA, SQL, VHDL, Assembly

**Web & Markup:** Angular, React, HTML, CSS, XAML, YAML, XML

**Tools & Platforms:** Docker, Git/GitHub/GitLab, VS Code, Visual Studio, Android Studio, MySQL, Xilinx Vivado, IBM Rational Rhapsody, WxFormBuilder, ActiPro

**Spoken Languages:** English (Native), Spanish (Native), German (Proficient)

## PROFESSIONAL EXPERIENCE

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### Software Developer Consultant

*Dec 2023 – Jan 2026*

#### T&S Machines and Tools — Gainesville, TX

- Refactored subroutines and improved screen merging processes, increasing system stability and performance.
- Containerized the application using Docker, simplifying global customer deployments and reducing setup time.
- Authored and maintained comprehensive technical documentation and reference guides, distributed via GitLab.
- Delivered remote technical support to customers worldwide, resolving software issues in production environments.

### Software Developer

*Nov 2022 – Jan 2023*

#### Nicular — Dallas, TX

- Automated clinician workflows by building an email and SMS reminder system for patient appointments using VonageAPI and GSuite, maintaining full HIPAA compliance.
- Collaborated cross-functionally to design and implement a reusable communications framework for patient messaging.
- Designed and organized relational database tables to support application data storage and retrieval.

### Software Developer

*Nov 2019 – Mar 2023*

#### T&S Machines and Tools — Gainesville, TX

- Refactored and developed probing and milling routines for CNC machines, enhancing precision and reliability for global customers.
- Created new probing functions and milling programs tailored to customer requirements across international markets.
- Updated and maintained technical documentation for both CNC and balancing machine systems.
- Provided remote technical support to customers, troubleshooting programs and software in real time.

## PROJECTS

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### Advanced Dynamic Lighting Control System | Senior Design — Texas Space Grant Consortium / NASA

- Designed and implemented circadian lighting profiles for crew members and plant life aboard spacecraft, contributing to NASA-sponsored research.

- Built hardware integration using Raspberry Pi 4, LUX and RGB sensors communicating over BUS via Open Lighting Architecture (OLA), developed in Python.
- System dynamically adjusts lighting to individual circadian rhythms, supporting crew health on long-duration missions.

#### **Supply Chain Resilience Web App** | *HackZurich Hackathon*

- Developed a full-stack logistics optimization tool for Migros that analyzes shipping threats and recommends alternative port routes.
- Built using React, Python, JavaScript, and Jupyter Notebook in a fast-paced hackathon environment.

#### **SofaBot** | *UNT Robotics Club*

- Contributed to the design and construction of a mobile sofa robot, assisting with programming, electronics integration, and assembly.

## **EDUCATION**

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**B.S. Computer Engineering** | **Minor in Mathematics**  
**University of North Texas**

*Dec 2023*