CRISTIAN YESID CHITIVA VELA

Robotics Software Engineer · Full Stack Developer

cristianchitiva.dev
github.com/cychitivav
me@cristianchitiva.dev
/in/cychitivav
+57 319 5522069
Bogotá, Colombia

SUMMARY

Driven Robotics Software Engineer with a solid foundation in mechatronics engineering and expertise in developing software for complex robotic systems. Currently serving as the Lead Frontend Developer in a dynamic software development environment. Demonstrates advanced proficiency in ROS, Docker, Linux, and 3D modeling, with a robust understanding of control theory and full-stack development. Passionate about advancing drone technology through innovative software and system integration.

SKILLS

Languages: Python, JavaScript, Linux/Bash, MATLAB, SQL, C++.

Technologies: Docker, ROS, Git, GitHub, React.js, Django, Numpy, Matplotlib, OpenCV, 3d Modeling, Electronic system design

EXPERIENCE

01/2024 - Present

Full Stack Software Developer — **Trajectory Inc**

- **Frontend Expertise:** Lead frontend development with React and Next.js, handling the most complex and critical tasks. As a key technical resource in the company, I ensure code quality and provide detailed reviews to enhance the user experience.
- **System Architecture:** Played a key role in transitioning from a monolithic to a microservices architecture, integrating an API Gateway to streamline authentication, authorization, and resource management. This change significantly improved scalability, reduced system failures, and enhanced time-on-service efficiency.
- **Technology Integration:** Leveraged Docker for containerization and deployment, ensuring scalable and consistent development environments.
- **Automation & Version Control:** Utilized Linux/Bash for task automation, improving efficiency in development processes, and managed collaborative projects using Git and GitHub.
- **Interdisciplinary Collaboration:** Worked closely with backend teams to ensure seamless integration of frontend components with microservices, adhering to best practices in system architecture.

`MySQL, React, Next js, Django, Software Architecture, Git, UI/UX`

01/2023 - 07/2023

Intern — **Millenium BPO**

- **Automated Document Processing:** Developed an automated document analysis system using OpenCV, significantly increasing the efficiency of handling requests, complaints, and claims.
- **API Deployment:** Deployed the analysis system on a Flask-based platform with Uvicorn and PostgreSQL, ensuring robust and efficient data handling.
- **Technical Expertise:** Applied Linux skills for system management and Docker for deploying the solution in isolated environments, improving reliability and ease of maintenance.

`PostgreSQL, OpenCV, Flask, Docker, Uvicorn`

EDUCATION

06/2016 - 06/2023

Bachelor's degree in Mechatronics engineering — **Universidad Nacional de Colombia**

GPA: 4.0/5.0

- **Leadership:** Led various university projects focused on automation and robotics, fostering teamwork and successful project outcomes.
- **Problem-Solving:** Developed control algorithms for projects, demonstrating strong analytical skills and creativity in resolving complex challenges.
- **Relevant Courses:** Servo-Mechanisms, Robotics, Control, Control Techniques, Signals and Systems, Finite Element Analysis, Automation.

01/2003 - 11/2014

Academic High School Graduate — **Instituto Cultural Rafael Maya**

ACADEMIC PROJECTS

Technology

Stewart Platform Restoration Project

- **System Restoration:** Restored a 6-DOF Stewart Platform using MATLAB and xPC Target Toolbox, overseeing the repair of electronic and mechanical systems.
- **Control Systems Application:** Applied control theory (PID, LQR) to achieve precise movement and stability of the platform, demonstrating deep understanding of control systems.
- **Technical Integration:** Managed the integration of the platform's control system within a MATLAB environment, utilizing version control with GitHub for project management.

`3d modeling, Git, Electronic restoration, MATLAB, Real-Time system`

Technology

Autonomous UGV Development for Agricultural Research

- **Design & Development:** Led the development of an unmanned guided vehicle (UGV) using ROS on a Raspberry Pi 4, integrating a custom power distribution circuit designed in KiCad.
- **3D Modeling:** Utilized Fusion360 for the design and simulation of the UGV's mechanical structure, optimizing it for agricultural tasks.
- **Robotics Software Integration:** Implemented ROS-based control systems, leveraging Linux and Docker for software deployment, ensuring the platform's reliability in research applications.

`3D Modeling, ROS, Docker, Mechanical design, Electronic Design`

Technology

Inverse Kinematics and Motion Control for X100 Pincher Robot

- **Robotic System Programming:** Developed inverse kinematics and motion control algorithms using ROS Noetic and the Robotics Toolbox for Python.
- **Trajectory Planning:** Executed complex trajectory planning in both workspace and joint space, optimizing the robot's performance in pick-and-place tasks.
- **Collaboration & Version Control:** Collaborated with peers using Git and GitHub, ensuring efficient project management and version control.

`PostgreSQL, OpenCV, Flask, Docker`

LANGUAGES

English - B2+, **Spanish** - Native, **German** - A1

HOBBIES

In my free time I enjoy riding my bike, solving programming challenges, reading about new technologies, playing video games or collaborating in open source projects.