João Vasco

Always curious and eager to learn.

Coimbra, Portugal
+351965174595
jndvasco@gmail.com
https://jndvasco.pt

Short Bio

Highly motivated, strategic thinker, team worker and a strong focus on continuously improving myself

Profiles

jndvasco

jndvasco

Languages

Portuguese
Native

English
C1

Spanish

Certifications

Certificate in Advanced English
Cambridge Assessment English
June 2019

Hobbies

Photography

Reading random Wikipedia articles

Experience

Salutec **April 2023 - June 2023**
Software Engineer
https://www.careonics.com/inpact.html

Developed an Embedded system based on a Jetson Xavier that integrates a backend and frontend developed by another team. The system runs Ubuntu Linux and each module is a separate Docker container allowing for easy dependencies and version management. The backend consists of video capture and processing using AI models to generate data from patient exercises. The frontend consists of a local user interface for the patient and another for the doctor accessed through the cloud.

Skills: C++ / Python / Docker / Linux / Embedded Systems

Institute of Systems and Robotics **September 2021 - February 2024**
Research Technician Coimbra
https://isr.uc.pt

Research Scholarship in the INPACT Project

Developed an application capable of capturing image frames (Intel D435i, Zed2) and data from a motion capture system (OptiTrack) in a synchronized and time-accurate manner to develop a dataset for model training. Motion capture acts as the ground truth for the skeleton and the RGB and Depth frames as data for the model to generate a skeleton.

Project website: INPACT

Skills: C++ / Python / Data Processing / Image Processing

Education

Aalto University **September 2023 - Present**
Electrical and Computer Engineering Exchange

University of Coimbra **July 2021 - September 2021**
Robotics and Applied Machine Learning Summer Course

University of Coimbra **September 2019 - Present**
Electrical and Computer Engineering Integrated Masters

Academic Projects

Bot Olympics'23 **September 2022 - August 2023**
General Coordinator
https://botolympics.jndvasco.pt

Responsible for coordinating a team of 25 people and interacting, listening and helping each department achieve its goal in order to have a successful event. Gather new and maintain existing partnerships and sponsorships with various entities in order to increase the event outreach and quality.

Skills: Team Management / Networking

Bot Olympics'22 **September 2021 - August 2022**
Technical Team Manager
https://github.com/Clube-de-Robotica/BotOlympics22

Development of robotics Platforms and Software libraries to interact with the actuators and sensors.
Technical Coaching, Support and Mentoring to the participants of the competition

Skills: Hardware / Mentoring / C++

Skills

Linux
Manage and deploy Debian and RedHat based distros

Windows
Manage and deploy Microsoft Windows

Proxmox VE
Deploy and manage virtualization servers and clusters.

Docker
Docker, Docker Compose and Networks

Hashicorp Terraform
Deploy infrastructure as code using different providers

Hashicorp Packer
Create OS images using Packer

Ansible
Create playbooks to automate tasks and maintain infrastructure in a desired state

Bash/Powershell
Create scripts to automate tasks

Git
Use version control systems to collaborate and keep track of code bases

Python
Intermediate knowledge of python and libraries like Numpy, Pandas, Matplotlib, Seaborn, SciKit-Learn and Pytorch

C/C++

Matlab/Simulink

Arduino

2D/3D CAD
Autocad LT and Fusion 360

3D Printing
Slicing, Material Selection and Maintenance

Personal Projects

Homelab

https://github.com/JNDVasco/TheHomelab

Learning environment used for learning new technologies and experimenting with hardware and software. Main server is based on Proxmox Hypervisor.

- Windows VM with GPU Passthrough used as a remote desktop for heavier tasks and gaming.
- Home assistant VM to manage and control smart things around the house.
- Docker VM for various services such as a personal website.
- Monitoring VM with Grafana for visualizations and InfluxDB and Prometheus as databases. Telegraf and Prometheus are used to scrape metrics from VMs, Servers and other services. Alerting is done via a Discord server and Email. Also running CheckMK for testing and learning. Running Grafana Loki for log aggregation.
- LDAP for user management.
- DNS server for adblocking and custom domains for the internal network
- Vaultwarden as a password manager.
- Internal reverse proxy based on NGINX configured with SSL Certificates. Currently also experimenting with Caddy.

External DNS is managed with Cloudflare

The homelab is managed with Terraform and Ansible allowing for a single source of truth and easy redeployment. Network communication is done via different VLANs allowing for segregated traffic. Weekly backups of the VMs and essential files are configured. The main operating system is Fedora (Cloud/Server) due to the regular updates while being similar to enterprise OS like RedHat.

Boiler Monitor

Developed a Boiler Monitoring system that reports the water temperature, On time and Turn-On count of a boiler, a circulating pump and a burner. Calculates the available fuel based on the consumption of the burner and the on-time. Data is sent to an MQTT Server (EMQX) and then input into a home assistant where it can be monitored. An alert for low available fuel is configured. The system is based on a ESP32 programmed in C/C++ with the Arduino Framework.

Aquarium Controller

Developed an aquarium controller that controls an RGBW light strip and 2 relays for a water and air pump. The system reports the water temperature, pH and flow. Data is sent to an MQTT Server (EMQX) and then input into a home assistant where it can be monitored and the light and relays can be controlled. The system is based on a ESP32 programmed in C/C++ with the Arduino Framework.