DANIEL DUCLOS-CAVALCANTI

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American/Brazilian Electrical and Computer Engineer by the Technical University of Munich. Experienced in Low-Level, FPGA, and Embedded development; as well as TinyML-related applications. Currently, more interested in Natural Language Processing as a field of research.

EDUCATION

M.Sc. Electrical/Computer Engineering, TU Munich ***Oct 2020 – Now***

- GPA: 3.0 (American Standards) | 2.5 (German Standards)
- Currently enrolled in last semester

B.Sc. Electrical/Computer Engineering, TU Munich ***Feb 2017 – Sept 2020***

- GPA: 3.1 (American Standards) | 2.2 (German Standards)
- Bachelor Thesis, 1.3 – *Netlist Error Modeling*
- Unfinished Previous B.Sc., PUC-RIO, Brazil – 144/238 Credits from 2013-2016

EXPERIENCE

Working Student, EDA Department - TU Munich ***Jul 2022 – Oct 2022***

Assisted ongoing research within the Electronic Design Automation (EDA) department at TUM.

- Python development to automate and build a Design-Space-Exploration framework.
- Framework's goal was to find optimal heteregeneous hardware configurations to run inference on given ML models.

Working Student, Molabo GmbH ***Aug 2021 – Jan 2022***

Assisted the motor-drive team, developing for their Embedded and FPGA devices.

- Responsible for the team's Jenkins Pipeline, hand-crafting Jenkinsfiles and supervising successful pipeline execution.
- Began containerized unit tests in C++ through gTest/GoogleTest with coverage via gcov.
- Aided development on embedded C code and VHDL Modules for the company's SoC.
- Built toolchains via CMake and GNU Make.
- Automation through one-off Python and Bash scripts.

Tutor, RCS Department - TU Munich ***Aug 2021 – Jan 2022***

Assisted in teaching the Embedded Systems Programming Lab course given at TU Munich.

- Helped students during their course work and their final project, which consisted of writing FreeRTOS applications in C.

Research Intern, RCS Department - TU Munich ***Oct 2020 – Feb 2021***

Full-time research intern at the Real-Time Computer Systems department within TUM.

- Working with Google's Edge Coral TPU and benchmarking it's performance.
- Benchmarking is done through the analysis of USB traffic during model inference *(Wireshark, pyshark)*
- Automated the training, freezing, inference and hardware deployment of several ML Models through Tensorflow.

SKILLS

- Embedded/Low-level Development: C(**Experienced**), Rust(**Basics**)
- Scripting: Python(**Intermediate**), Lua(**Intermediate**), Bash(**Experienced**)
- Tool-chain Development: CMake, GNU Make, Git, Ansible
- Containerization/CI and CD: Docker, Jenkins, Travis CI
- Frameworks/Tools: OpenMPI, OpenMP, Tensorflow, GoogleTest, PyTest, Python CFFI, SDL2
- OS/Systems: FreeRTOS, Contiki OS, Linux, Arch Linux, Ubuntu
- Wev Development: Basics of HTML, CSS and Javascript

PROJECTS

FreeRTOS Space Invaders (C)
Hamming-Code Error Detection (VHDL/C)
Serve (golang): small cli tool

CERTIFICATES

UCSD: Data Structures Fundamentals
UT Austin: Embedded Systems - Microcontroller I/O
NUS - Singapore: Natural Language Processing - Foundations

LANGUAGES

English/Portuguese - *Native*
German - *Fluent*
Spanish - *Beginner*