Daniel Duclos-Cavalcanti

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Summary

Finding a thesis topic at the intersection of finance and modern computer science naturally complemented my rigorous German education in electrical engineering, leading me to the mentorship of Prof. Sivaraman at NYU. Envisioning a future performant financial exchange operating on the public cloud isn't hard when you are a team player who enjoys explaining your solutions to researchers from diverse cultures and languages.

Education

Technical University of Munich — Munich, Germany & New York, USA
M.Sc. Electrical and Computer Engineering — *Oct 2020 – **Sept 2024***

- M.Sc. Thesis: **"VM Selection Heuristic for Financial Exchanges in the Cloud"**
- Co-Advised by: Dr.Sivaraman from NYU and Prof. Dr.-Ing. Kellerer from TUM
- **New York University: Courant Institute of Mathematical Sciences** — Sept 2023 – May 2024
  - Visiting Non-Degree Graduate Student
  - Co-Authored: Jasper: Fair Multicast for Financial Exchanges in the Cloud – *(paper)*
  - CSCI-GA 2250 - Operating Systems - A

Technical University of Munich — Munich, Germany
B.Sc. Electrical and Computer Engineering — *Oct 2016 – Sept 2020*

- **German GPA:** 2.2 (Top 37%) – See Grade Distribution

Skills

Languages: C, C++, Python, Golang, Rust, Lua, VHDL, Tcl, JavaScript, HTML/CSS
Tools: Terraform, Docker, Packer, AWS, GCP, Git, Unix Shell, Makefile, CMake, Linux, Jenkins
Technologies: Cloud Computing, Computer Networking, Embedded Systems, FPGAs, RTOS, Machine Learning, HPC
Frameworks/Libraries: ZeroMQ, DPDK, Tensorflow, TFLite, Pytest, GTest, OpenMPI, OpenMP, Xilinx Vivado
Hardware: Raspberry PIs, Embedded Linux, ARM Cortex MCUs, USB, TCP, UDP, IP, UART, GPIO

Experience

EDA Department - TU Munich | *Research Assistant* — Jul 22–Oct 22, Oct 20–Mar 21
Two-Part internship, where I aided in developing a research Design-Space-Exploration framework that needed to:

- Run optimally the inference of Machine Learning Models across heterogeneous hardware (GPUs, CPUs, TPUs).
- Analyze traffic costs via processing USB traffic between the host and Google's Coral Edge TPU.

Molabo GmbH | *Internship - Embedded Engineer* — Aug 21 – Jan 22
Assisted the motor-drive team in developing:

- Streamlined workflows via Jenkinsfiles, CMake and GNU Make.
- Features and Unit-Tests for their Embedded and FPGA Devices.
- Internal Tooling such as a Linux virtual CAN interface to simulate communication within their systems.

RCS Department - TU Munich | *Tutor - Embedded Systems Lab* — Apr 21 – Aug 21

- Tutor for the Embedded Systems Programming Lab at TU Munich.
- Aided students in their embedded/multi-threaded FreeRTOS projects in C.

Projects

(16,11) Hamming-Code Err. Detection	*C, FPGA, UART, VHDL, SoC, Microsemi*
FreeRTOS-SpaceInvaders	*C, FreeRTOS, RTOS, Multi-Threaded, Git, Unix Shell*
Open-MPI-ValueIteration	*C++, HPC, OpenMPI, Multi-Threaded, Distributed Workload*
Serve CLI	*Golang, CLI, Tooling, UNIX*

Certificates

- UCSD: Data Structures Fundamentals
- UT Austin: Embedded Systems - uC I/O