LUCAS MARIANO GRIGOLATO
FPGA DESIGN & TELECOMMUNICATIONS ENGINEER

✉ lucasmarianogrigolato@gmail.com ⋄ 📍 Helmond, The Netherlands

in linkedin.com/in/lucas-grigolato ⋄ ⌂ github.com/grigosback

EXPERIENCE

⚙ TMC Electronics [1]   Dec 2022 - Now
FPGA Engineer   *Eindhoven, The Netherlands*

Currently working as a consultant for Ericsson (Sweden) on projects involving high-capacity wireless communications.

· Designed and implemented FPGA cores and device firmware for various high-capacity wireless communication projects.
· Used High-Level Synthesis (HLS) to develop IP cores from C++ behavioral descriptions.
· Developed C++ software to interface CPUs with custom FPGA designs.
· Implemented acceptance tests for FPGA designs and individual IP cores.
· Automated workflows and the CI/CD environment using Make, Python, and Bash scripts.

◈ Emtech S.A. [2]   Oct 2020 - Nov 2022
FPGA Design Engineer   *Rosario, Santa Fe, Argentina*

Designed, verified, and implemented FPGA cores and device firmware for satellite communication projects.

· Developed FPGA cores for digital signal processing and control logic.
· Created low-level firmware for custom hardware interfaces.
· Designed and implemented communication protocols.
· Verified and validated simulation models for FPGA and system-level performance.
· Applied design guidelines specific to space communication systems (e.g., reliability, radiation tolerance, redundancy, error detection and correction).

⊕ Centro de Innovación Tecnológica [3]   Mar 2016 - Jul 2017
Instructor   *Rosario, Santa Fe, Argentina*

Worked as an IT course instructor at Fundación Libertad.

· *Cloud Management with GSuite* – 80 hours (Empleartec Program).
· *Cisco IT Essentials* – 80 hours.
· *Microsoft Excel, Advanced Level* – 12 hours (taught across 6 editions).

🇨🇱 Consulado General de Chile en Rosario [4]   Sep 2013 - Jul 2017
IT Support Manager   *Rosario, Santa Fe, Argentina*

· Managed Help Desk team of 7 employees.
· Maintained and repaired computer hardware.
· Acted as liaison between the Chilean government and the consulate for the implementation of new IT solutions.
· Implemented, administered, and managed computer network infrastructures.
· Performed advanced software and hardware troubleshooting.
· Provided remote technical support.

Fundación Libertad [5]
IT Support Manager
Aug 2012 - Jul 2017
Rosario, Santa Fe, Argentina

· Managed Help Desk operations for 30 employees.
· Maintained and repaired computer hardware.
· Implemented, administered, and managed computer network infrastructures.
· Performed advanced software and hardware troubleshooting.
· Administered GSuite environment and user accounts.
· Managed web hosting services and domain configurations.
· Provided remote technical support.
· Administered Active Directory on Windows Server 2008.

PROJECTS

BlueWalker 3
AST SpaceMobile
Feb 2021 - Dec 2022

Designed and refactored communication, control, and design-for-testability (DFT) logic for the Microns blocks used in satellite systems. This included the digital and analog front ends, LTE communication links, and beamformer components.

V*Ger
Skyloom Global Corp.
Oct 2020 - Oct 2021

Designed and developed communication cores and control logic for an optical communication terminal used in satellites. Developed and implemented acceptance tests for the corresponding electronic boards.

Digital beamformer for the reception of satellite signals
Telecommunications Engineering Department, Centro Atómico Bariloche
Aug 2019 - Dec 2020

Analyzed and implemented digital beamforming techniques using an antenna array for signal reception, with emphasis on MUSIC and ESPRIT direction-of-arrival estimation algorithms. Developed signal count estimation methods, including an implementation using a Support Vector Machine (SVM) algorithm. Proposed and designed a beamforming system architecture for deployment on a CIAA-ACC development board, distributing functionality between the FPGA and microprocessor. Implemented the complete system in GNU Radio and validated its operation through simulations scripted in Python.

EDUCATION

Instituto Balseiro (UNCuyo) [6]
Telecommunications Engineering
Jul 2017 - Dec 2020
San Carlos de Bariloche, Río Negro, Argentina

· 5.5 - years program.
· Comisión Nacional de Energía Atómica scholarship for undergraduate students.
· Final Project: *Digital beamformer for the reception of satellite signals* @ Telecommunications Engineering Department, Centro Atómico Bariloche.

Facultad de Cs. Exactas, Ingeniería y Agrimensura (UNR)
Electronic Engineering
Feb 2009 - Jul 2017
Rosario, Santa Fe, Argentina

· 5 - years program, three years completed.
· Obtained Bachelor degree.

VOLUNTEER EXPERIENCE

⚛ TMC Works Council (OR)
IT Committee Member

October 2023 - Now
Eindhoven, The Netherlands

· Advised on multiple IT projects implemented by the company's IT department
· Provided input and feedback to ensure projects positively impacted employees
· Collaborated with council members and IT teams to align technology solutions with employee needs
· Monitored IT initiatives from a user and organizational perspective to improve adoption and effectiveness

⚖ Centro de Estudiantes del Instituto Balseiro [7]
IT Secretary

Apr 2019 - Dec 2020
San Carlos de Bariloche, Río Negro, Argentina

· Elected by vote in 2019 and 2020.
· Provided Help Desk support for $\approx$ 200 students.
· Administered, maintained, and managed file and web servers.
· Implemented and supported VPN solutions.
· Acted as liaison between students and institute authorities on IT-related matters.
· Managed IT-related purchases and vendor coordination.

SKILLS

Programming & HDL	VHDL, SystemVerilog, HLS, Python, MATLAB, C, C++, Machine Learning
Tools & IDEs	Vivado, Libero SoC, Vitis, Vitis HLS, Catapult HLS, Jenkins, Visual Studio Code, GNU Radio, Cisco Packet Tracer, Proxmox, VMware, VirtualBox, CST Studio, ADS.
Version control & PM	GitLab, Github, Jira.
FPGA	Zynq-7000 SoC, Microsemi ProASIC3, Kintex UltraScale, Zynq UltraScale+ RFSoC.
Verification	UVM, Questa Sim, VCS.
Documentation	LaTeX, Markdown, Doxygen.
Networking	CCNA R&S (Level 2), pfSense, MikroTik, OpenVPN, WireGuard, Squid, Socket API.
Telecommunications	Optical/RF/Wireless/Analog/Digital/Satellite Communications, Fundamentals of Optical Fibers, DSP, Statistical Signal Processing, Software Defined Radio, Beamforming.
Operative Systems	Microsoft Windows, Linux, Cisco IOS, RouterOS.
Languages	English (Professional), Spanish (Native), Dutch (Basic).

REFERENCES

[1] **TMC Electronics**

- Mike Odekerken, Senior Business Manager, TMC Electronics
  (mike.odekerken@tmc.nl)

[2] **Emtech S.A.**

- Ing. Guillermo Güichal, CEO, Emtech S.A.
  (gguichal@emtech.com.ar)

[3] **Centro de Innovación Tecnológica**

- Ing. Sebastián Bosch, Director, Centro de Innovación Tecnológica, Fundación Libertad
  (sbosch@edn.org.ar)

[4] **Consulado General de Chile en Rosario**

- Mrs. Arely Mella Contreras, Minister of Faith and Authorized Secretary, Consulado General de Chile en Rosario
  (amellac@minrel.gob.cl)

[5] **Fundación Libertad**

- Mr. Gerardo Bongiovanni, President, Fundación Libertad (gbongiovanni@libertad.org.ar)

- Lic. Ana Figueroa Casas, Director, Escuela de Negocios, Fundación Libertad
  (afcasas@edn.org.ar)

[6] **Instituto Balseiro**

- Dr. Diego Grosz, Head of Department, Telecommunications Engineering, Centro Atómico Bariloche (grosz@ib.edu.ar)

- Dr. Santiago Hernandez, Final Project Advisor, Telecommunications Engineering, Centro Atómico Bariloche (shernandez@ib.edu.ar)

[7] **Centro de Estudiantes del Instituto Balseiro**

- Executive Committee (cdceib@gmail.com)