Mauricio **Vásquez Bernal**

Software Engineer
Research Assistant
Polytechnic University of Turin

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- Medellín - Colombia

Languages

Spanish	● ● ● ● ●
Italian	● ● ● ● ○
English	● ● ● ● ○

Skills

Programming Languages

C	● ● ● ● ●
C++	● ● ● ● ○
Go	● ● ● ○ ○
Python	● ● ● ○ ○
Java	● ● ○ ○ ○

Computer Networks

eBPF and XDP	● ● ● ● ●
TCP/IP	● ● ● ● ○
SDN and NFV	● ● ● ● ○

Virtualization

KVM/QEMU	● ● ● ● ○
Open vSwitch	● ● ● ● ○
Docker & LXC	● ● ● ● ○
Kubernetes	● ● ● ○ ○
OpenStack	● ● ● ○ ○

Software Development

Git	● ● ● ● ○
Open Source	● ● ● ● ○
GDB	● ● ● ○ ○

Soft Skills

Problem Solving	● ● ● ● ○
Self-Motivation	● ● ● ● ●
Communication	● ● ● ● ○
Teamwork	● ● ● ● ○

Profile

Young software engineer with 3+ years of experience in software development. I am a proactive team member, very motivated and enthusiast about new life challenges. I am one of the main developers of Polycube, an open source framework for developing virtual network functions with eBPF and XDP. I play nicely with open source development, I have contributed to different projects like Linux kernel, BPF Compiler Collection (BCC), Open vSwitch (OVS) and Data Plane Development Kit (DPDK).

Experience

Feb 2016 – Present	**Research Assistant**	Polytechnic University of Turin

- Developing of polycube, an open source framework to build fast and lightweight virtual network functions witheBPF
- Developing of high-performance virtual network functions with eBPF and XDP
- Contributing to open source projects like Linux kernel and BCC

Feb 2015 – May 2017	**Consultant**	Nebbiolo Technologies

- Implementing high performant virtual network functions with eBPF

Sep 2016 – Jan 2017	**Consultant**	Plumgrid (Acquired by VMware)

- Developing iovisor-ovn, an eBPF datapath for Open Virtual Networking (OVN)

Jan 2015 – Aug 2016	**Research Assistant**	Polytechnic University of Turin

- Developing of a high-performance communication channel for inter-VM communication in Open vSwitch
- Contributing to open source projects like Open vSwitch (OvS) and Dataplane Development Kit (DPDK)
- Participating in the Unify European Project

Education

2013 – 2015	Master in Computer Engineering	Polytechnic University of Turin
2009 – 2013	Bachelor in Electronic Engineering	University of Antioquia

Projects

Polycube github.com/polycube-network/polycube
Polycube is an open source framework for developing fast and lightweight network functions using eBPF and XDP.

IOVisor-ovn github.com/iovisor/iovisor-ovn
IOVisor-ovn is an eBPF based datapath for the Open Virtual Networking project. It provides a virtual networking solution for virtual machines in environments like Open Stack.

Squadra Corse Polito facebook.com/pg/SCPolito
Squadra Corse is a student racing team from Polytechnic University of Turin. Each year the team design, build and test an electric car to compete against teams from other universities all around the world. I was in charge of developing the telemetry and datalogging systems.

Publications

Jun 2018	**Creating Complex Network Services with eBPF: Experience and Lessons Learned**
	HSPR
Oct 2018	**Transparent Optimization of Inter-Virtual Network Function Communication in Open vSwitch**
	CloudNet
Aug 2016	**A Transparent Highway for inter-Virtual Network Function Communication with Open vSwitch**
	SIGCOMM