





# Mauricio Vásquez Bernal

Software Engineer  
Research Assistant  
Polytechnic University of Turin

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## 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 with eBPF  
● Developing of high-performance virtual network functions with eBPF and XDP  
● Contributing to open source projects like Linux kernel and BCC  
Feb 2017 – 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 Data Plane 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](https://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](https://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/SCPolino](https://facebook.com/pg/SCPolino)  
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

