Matteo **Bertrone**

SOFTWARE ENGINEER · RESEARCH ASSISTANT AT POLYTECHNIC OF TURIN

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"Everyone thinks of changing the world, but no one thinks of changing himself" - Leo Tolstoy

Sum**mary**

I'm research assistant at Department of Control and Computer Engineering of Polytechnic of Turin, Italy, where I'm working on network programmability, SDN and could computing, eXpress Data Path (XDP) and eBPF. I deal with distributed programming, APIs design, concurrency, and performance optimization. I love to code, but I also love to share ideas and feedback with my team, not only technical ones.

Wor**k Experience**

Polytechnic of Turin   *Turin, Italy*
RESEARCH FELLOW & SOFTWARE ENGINEER - USED LANGUAGES (C++, EBPF, GO)   *Jan. 2017 - PRESENT*
- Core developer of Polycube: I am part of design and development process of the framework from the very beginning.
- Implemented an abstraction layer to easily deploy services (e.g. bridges, routers), configure them, create virtual topologies, and connect them to Dockers, namespaces, VMs, NICs. Developed a rich set of services, e.g. bridge, router, load balancer, nat, DDoS mitigator.
- Designed and developed a clone of iptables firewall, exploiting efficient algorithms and XDP optimizations, leading up to 10x performance gain.

Huawei Technologies   *Santa Clara, CA, U.S.A.*
INTERN - USED LANGUAGES (C++, EBPF, GO)   *May. 2018 - Jun. 2018*
- Development of Polycube framework and services, as collaboration with Polytechnic of Turin.

Nebbiolo Technologies, INC. (Start-up company)   *Milpitas, CA, U.S.A.*
CONSULTANT - USED LANGUAGES (C++, EBPF, GO)   *Feb. 2017 - May. 2017*
- Design and deploy of a lightweight bridging networking solution, as a substitute of Linux bridge.

PLUMgrid INC. (Acquired by VMware)   *Santa Clara, CA, U.S.A.*
INTERN - USED LANGUAGES (EBPF, GO)   *Sep. 2016 - Jan. 2017*
- Developed a networking provider for OpenStack. Increased visibility by publishing it under iovisor community.

EiSWORLD   *Turin, Italy*
SOFTWARE DEVELOPER - USED LANGUAGES (C#)   *Mar. 2014 - May. 2014*
- Developed a network analysis and diagnostic tool for Fiat Chrysler Automobiles, used to debug and detect issues on dealers network.

Pro**jects & Open Source**

PolyCube   *github.com/polycube-network*
CORE DEVELOPER - POLYCUBE IS AN OPEN SOURCE FRAMEWORK TO BUILD VIRTUAL NETWORK FUNCTIONS WITH XDP AND EBPF   *Jan. 2017 - PRESENT*

Iovisor-ovn   *github.com/iovisor/iovisor-ovn*
MAIN DEVELOPER - IOVISOR-OVN PROVIDES AN EFFICIENT DATA PLANE REPLACEMENT FOR OPENSTACK NETWORKING.   *Sep. 2016 - Jan. 2017*

Pub**lications**

Accelerating Linux Security with eBPF iptables   *Budapest, Hungary*
ACM SIGCOMM 2018 CONFERENCE POSTERS AND DEMOS   *20-25 August 2018*
Toward an eBPF-based clone of iptables   *Montréal, Canada*
NETDEV 0X12, THE TECHNICAL CONFERENCE ON LINUX NETWORKING   *11-13 July 2018*
Creating Complex Network Services with eBPF: Experience and Lessons Learned   *Bucharest, Romania*
IEEE INTERNATIONAL CONFERENCE ON HIGH PERFORMANCE SWITCHING AND ROUTING   *17-20 June 2018*

Pre**sentation**

Open vSwitch Fall Conference   *San Jose, CA, U.S.A.*
DEMO - COUPLING THE FLEXIBILITY OF OVN WITH THE EFFICIENCY OF IOVISOR: ARCHITECTURE AND DEMO   *Nov. 2016*

Edu**cation**

Polytechnic of Turin   *Turin, Italy*
MASTER'S DEGREE, COMPUTER ENGINEERING, 110/110   *2014 - 2016*
Polytechnic of Turin   *Turin, Italy*
BSC DEGREE, COMPUTER ENGINEERING, 110/110   *2011 - 2014*