

SEBASTIANO MIANO

WWW.SEBYMIANO.GITHUB.IO

mianosebastiano@gmail.com ✉

sebymiano92 📧

https://github.com/sebymiano 🐱

https://www.linkedin.com/in/sebymiano92 in

EXPERIENCE

- Jul. 2020 - Present**
PostDoc Researcher
 - **Queen Mary University London** - London, United Kingdom
 - Automatic Optimization of Software Data Planes.
- Apr. 2019 - Dec. 2019**
Visiting Researcher
 - **University of Cambridge** - Cambridge, United Kingdom
 - Dynamic compilation and optimization of software network functions (e.g., eBPF, P4, DPDK) that exploits run-time configurations and traffic patterns.
 - Gained experience on: LLVM Compiler Framework, Dynamic Compilation Techniques, Machine Learning
- May. 2016 - Jul. 2016**
Research Engineer Intern
 - **EIT Digital** - San Francisco (CA), United States
 - Participating into an effort with ON.Lab, Softfire and EIT Digital to set up an infrastructure for an open SDN Federated Testbed (<http://openfederatedtestbed.org>).
 - Gained experience on: VNF/SDN OpenSource Orchestrators (e.g., OpenStack, ONOS, Open Baton).
- Jan. 2016 - Apr. 2016**
IT Network Consultant
 - **Ennova Group** - Turin, Italy
 - Innovative techniques to estimate the available bandwidth and the maximum capacity of a path in a wireless LAN environment.
- Jun. 2015 - Nov. 2015**
Network Engineer Intern
 - **Berlin Institute for Software Defined Networks (BISDN)** - Berlin, Germany
 - Transparent and selective offloading of OpenFlow rules into a legacy hardware switch ASIC.
 - Gained experience on: OpenFlow software switches (e.g., xDPd, Open vSwitch); Linux UIO driver development; software and hardware packet generators (e.g, Moongen, Pktgen-DPDK, Ixia).
- Jan. 2013 - Sep. 2013**
Software Engineer Intern
 - **Net.Service S.r.l** - Catania, Italy
 - Designed and developed a mobile application to manage the Italian Academic Reports cards.
 - Gained experience on: Mobile development (i.e., Android, iOS); Titanium framework; Javascript

EDUCATION

- Oct. 2016 - Jul. 2020**
Ph.D. Degree
 - **Polytechnic University of Turin** - Turin, Italy
 - Final degree mark: Ph.D. cum laude.
 - Thesis: Rethinking Software Data Plane in the Era of Micro-services
 - Explore novel mechanisms and architectures to improve host-based network applications, with a focus of eBPF and XDP.
- Oct. 2013 - Dec. 2015**
Master's Degree
 - **Polytechnic University of Turin** - Turin, Italy
 - Final degree mark: 110/110 cum laude.
 - Thesis: Optimized Traffic Control using SDN in a Business LAN Environment.
- Oct. 2010 - Jun. 2015**
Bachelor's Degree
 - **University of Catania** - Catania, Italy
 - Final degree mark: 110/110 cum laude.
 - Thesis: Mobile Management System for Academic Report Cards.
- 2003 - 2010**
Music Diploma (Trumpet)
 - **Conservatory of Reggio Calabria** - Reggio Calabria, Italy
 - Final degree mark: 8/10.

EXPERTISE

- Progr. Data Planes** ● eBPF, XDP, P4, DPDK, SmartNICs
- SDN** ● Open vSwitch, OpenFlow, xDPd, ONOS
- NFV** ● Kubernetes, OpenStack, Mesos
- Compilers** ● LLVM, LLVM IR, GCC
- Others** ● Machine Learning, Artificial Intelligence

SKILLS

- Programming** ● C, C++, Java, Bash, Python, C#, LaTeX
- Back-end** ● REST APIs, Ruby on Rails, Nginx
- Front-end** ● React, HTML5, CSS
- Others** ● Git, OpenAPI, RESTconf, YANG
- Languages** ● Italian (Native), English (fluent)

PROJECTS

- **Polycube** - Software framework to build and manage chains of eBPF-based VNFs
 - Available at: <https://github.com/polycube-network/polycube>.
- **BPF-iptables** - A clone of iptables based on eBPF
 - Available at: <https://polycube.readthedocs.io/en/latest/components/iptables/pcn-iptables.html>.
- **PCN-k8s** - A pod network provider for kubernetes
 - Available at: <https://polycube.readthedocs.io/en/latest/components/k8s/pcn-kubernetes.html>.

PUBLICATIONS

- 10-14 August 2020** ● **Automatic Optimization of Software Data Planes (SIGCOMM SRC Winner)**
Virtual Event, USA
Miano, Sebastiano; Gábor Rétvári; Fulvio Rizzo; Andrew W. Moore; Gianni Antichi
In: ACM SIGCOMM '20 Demos and Posters [Poster]
- 10-14 August 2020** ● **An eBPF-based Mobile Gateway: Design and Challenges**
Virtual Event, USA
Parola, Federico; Miano, Sebastiano; Rizzo, Fulvio
In: ACM SIGCOMM '20 Demos and Posters [Poster]
- March 2020** ● **A Micro-service Approach for Cloud-Native Network Services**
San Jose, California
Miano, Sebastiano; Rizzo, Fulvio
In: ACM SIGCOMM Symposium on SDN Research (SOSR) [Demo]
- October 2019** ● **Transforming a Traditional Home Gateway into a Hardware-accelerated SDN Switch**
Miano, Sebastiano; Rizzo, Fulvio
In: International Journal of Electrical and Computer Engineering (IJECE)
- 24-25 September 2019** ● **A Service-Agnostic Software Framework for Fast and Efficient In-Kernel Network Services**
Cambridge, UK
Miano, Sebastiano; Bertrone, Matteo; Rizzo, Fulvio; Vasquez Bernal, Mauricio; Lu, Yunsong; Pi, Jianwen; Shaikh, Asif
In: 15th ACM/IEEE Symposium on Architectures for Networking and Communications Systems (ANCS)
- August 2019** ● **Introducing SmartNICs in Server-Based Data Plane Processing: The DDoS Mitigation Use Case**
Miano, Sebastiano; Doriguzzi-Corin, Roberto; Rizzo, Fulvio; Siracusa, Domenico; Sommese, Raffaele
In: IEEE Access, Volume 7
- July 2019** ● **Securing Linux with a Faster and Scalable Iptables (Best of CCR 2020)**
Miano, Sebastiano; Bertrone, Matteo; Rizzo, Fulvio; Vasquez Bernal, Mauricio; Lu, Yunsong; Pi, Jianwen
In: ACM SIGCOMM Computer Communication Review, Volume 49, Issue 3
- 11-13 July 2018** ● **Toward an eBPF-based clone of iptables**
Montreal, Canada
Bertrone, Matteo; Miano, Sebastiano; Rizzo, Fulvio; Tumolo, Massimo
In: Netdev 0x12, The Technical Conference on Linux Networking
- 20-25 August 2018** ● **Accelerating Linux Security with eBPF iptables**
Budapest, Hungary
Bertrone, Matteo; Miano, Sebastiano; Rizzo, Fulvio; Tumolo, Massimo
In: ACM SIGCOMM 2018 Conference Posters and Demos

- 17-20 June 2018**
Bucharest, Romania
 - **Creating Complex Network Services with eBPF: Experience and Lessons Learned**
Miano, Sebastiano; Bertrone, Matteo; Riso, Fulvio; Tumolo, Massimo, Vasquez Bernal, Mauricio
In: 19th IEEE International Conference on High Performance Switching and Routing (HPSR)
- 3-7 July 2017**
Bologna, Italy
 - **Partial Offloading of OpenFlow Rules on a Traditional Hardware Switch ASIC**
Miano, Sebastiano; Riso, Fulvio; Woesner, Hagen
In: 3rd IEEE International Conference on Network Softwarization (NetSoft)
- 3-5 October 2016**
Pisa, Italy
 - **Enabling NFV services on resource-constrained CPEs**
Bonafiglia, Roberto; Miano, Sebastiano; Nuccio, Sergio; Riso, Fulvio; Sapio, Amedeo
In: 5th IEEE International Conference on Cloud Networking (Cloudnet)