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Nice, France
M.S. in Mathematics / DMA in Piano Performance
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Davide Madrisan

Curriculum Vitæ et Studiorum[*] 29 May 2021

Software Engineer at Qwant
Linux Open Source Developer with 20 years of experience

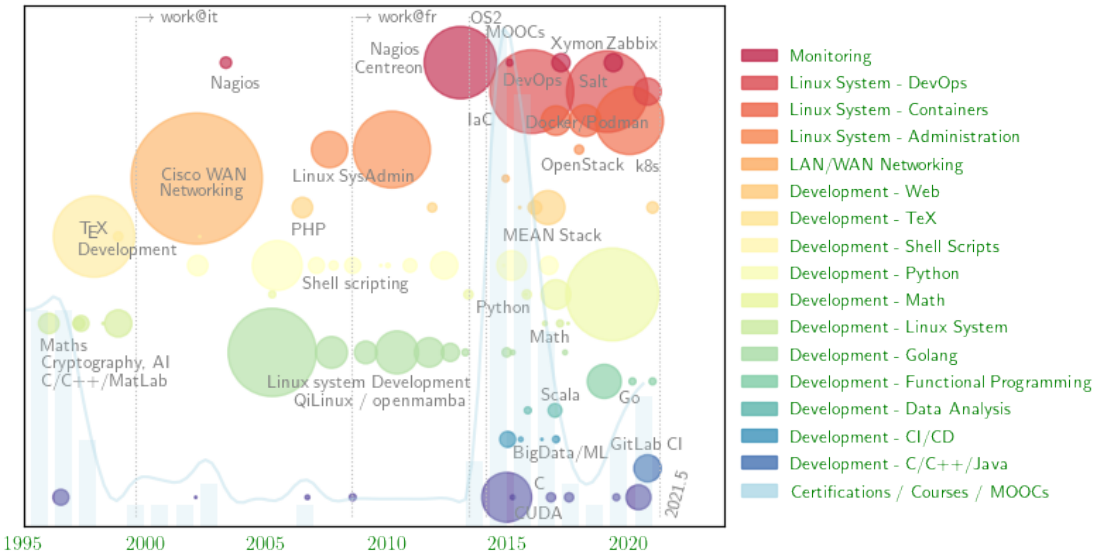
Starting with a degree in Applied Mathematics and a Master of Musical Arts in Piano, and then moving on into Cisco WAN networking and network security, Linux distribution development, Linux administration and Nagios/Centreon monitoring in highly demanding production environments, Linux embedded systems, a short period of Web development, DevOps, and finally Kubernetes and CI/CD technologies, I think I have a wealth of background knowledge, maturity, and ability to learn to bring to any new challenge or opportunity. What's next? Excellent question ...

Areas of Interest

I'm currently busy playing with GitLab CI, Kubernetes, Docker, SaltStack, Go, cloud technologies, and improving my knowledge in functional programming, but my interests in technology and maths/physics fields cover the following areas (somewhat ordered by decreasing degree of time accorded):

- Maths and Environmental Sciences, currently digging around Complex and Dynamic Systems, Chaos Theory, Fractals, Scaling, Logic, and Global Climate Changes;
- DevOps, Kubernetes, Infrastructure & Configuration as Code Technologies;
- Functional, concurrent, and Web programming (in Python, Go, Scala, Node.js);
- Cloud Computing Technologies, Microservices Architectures;
- Linux, Docker containers and Embedded Linux Systems.

An annotated scatter plot that should help visualizing my job and learning activities.



[*] *The online version of this Curriculum Vitæ is available at* `github.com/madrisan/cv`

Work Experience

May 2020 – current **Software Engineer @ Qwant.com**

Software Engineer and *DevOps* at Qwant (`www.qwant.com`), the French startup company that develops the eponymous web search engine that respects the users' privacy.

main tasks Continuous integration with GitLab CI (automated pipelines), applications deployment on Kubernetes. Infrastructure configuration with SaltStack.

software `github.com/madrisan/go-mattermost-notify` – A simple Mattermost notifier written in Go.

technologies Git, GitLab CI, HashiCorp Vault, Helm Charts, Kubernetes, MinIO, SaltStack.

September 2017 – April 2020 **Lead Infra DevOps @ Qwant.com**

Infra Lead DevOps at Qwant.

main tasks Software–define (*reasonably*) *everything* with *SaltStack*: from infrastructure to software integration, deployment, and testing. Develop some Salt state/execution/SDB modules, and runners for a better integration with GitLab CI, HashiCorp Vault HA (with HashiCorp Consul and Apache ZooKeeper as secure storage backends), {php}IPAM, and for deploying virtual servers and Swarm clusters. Code the deployment of web services, databases, Debian apt repositories, and the software projects developed by the Qwant developers.

software `github.com/madrisan/debian-packages` – Debian Stretch Packages for Vault, Consul, pyzabbix, pyvmomi.

`github.com/madrisan/hashicorp-vault-monitor` – HashiCorp Vault Monitoring Tool.

`github.com/madrisan/keepalived-vault-ha` – Keepalived Tracking Script for an high availability HashiCorp Vault cluster.

`github.com/madrisan/saltstack-mattermost` – A SaltStack extension module for interacting with Mattermost Incoming Webhooks.

`github.com/madrisan/saltstack-phpipam` – A SaltStack extension module for interacting with a {php}IPAM server.

technologies Docker/Docker Compose/Swarm, Git/GitLab/GitLab Runner, HAProxy, HashiCorp Vault and Consul, Jenkins, MariaDB, NGiNX, {php}IPAM, Phusion Passenger, Podman, SaltStack, Salt Cloud, Unbound, uWSGI, ZooKeeper; Golang, Python languages; Linux.

April 2013 – current **OS$_2$–Open Source Solutions (micro entreprise)**

In parallel of my current job, I have decided to develop an additional professional activity as Auto Entrepreneur, mainly focused on Open Source and Linux–based (new) technologies:

- Web development (JavaScript/JQuery, MEAN Stack, Web Sites);
- Linux Embedded system, multimedia, Python and web development on RaspberryPi;
- LAN networking design and setup (Cisco, DELL, Synology NAS);
- Web services based on AWS Cloud Technologies.

July 2014 – August 2017 **Senior DevOps and Linux Engineer at Sopra Steria**

I joined Sopra Steria group as a L3 consulting Linux administrator and DevOps on several Red Hat based new projects.

main tasks Lead the switch to *SaltStack* as primary tool for IT automation and system configuration management, built from scratch. Build, validate and improve *High Availability* solutions, for hosting web applications and Oracle databases, by using the *Red Hat cluster suite* (cman, pacemaker/corosync).

software `github.com/madrisan/saltstack-code-snippets` – SaltStack code snippets for Linux.

`github.com/madrisan/pyxymon` – improve the Xymon monitoring by developing new checks and fixing the existing ones.

Develop some scripts for building and packaging the infrastructure software into dynamically created Docker containers, one per supported platform. Develop a Python inventory tool for Linux using SaltStack as backend.

technologies Linux RHEL/CentOS/Debian, Red Hat Cluster Suite, Docker containers, AWS services, VMware. Git/GitHub/GitLab, Travis CI. SaltStack and Spacewalk. Shell and Python scripting languages, RWD (Bootstrap, CSS3, HTML5, AngularJS).

October 2011 – June 2014 **Monitoring Architect and Team Leader at IBM**

L3 Nagios and Centreon administrator and developer. *Technical Leader* of the *Nagios monitoring team* (France and Poland). *Focal point* of the monitoring technologies based on open source solutions and software. This work at IBM France has given me the opportunity to setup new solutions for monitoring operating systems, databases, applications, and network appliances by using a wide range of opensource technologies.

main tasks New project management (architecture, transition, planning, realization, and support). Design, implement, validate, and document new monitoring solutions, by cooperating with architects, managers, system, database, and application administrators.

Administer all the monitoring configuration (5k+ hosts; 60k+ monitored services), improve the security of the core and Nagios servers, apache services and applications.

Create rpm packages and administer the yum repositories containing the monitoring and system software (250+ source rpm packages and 2000 packages created from scratch).

software `github.com/madrisan/nagios-plugins-linux` – extend the *Nagios Plugins* official software for monitoring Linux hosts and Docker containers.

Develop shell, Python scripts, and C (system level) programs. Porting some of these C plugins to other Unixes (AIX, FreeBSD, OpenBSD, Solaris, SunOS openindiana).

technologies *Operating Systems*: AIX, HP-UX, Linux, Solaris, VMware ESX/ESXi, Windows;

Databases: DB2, MySQL, MS SQL, Oracle, PostgreSQL;

Network and IT security appliances: Linux, Cisco, BalaBit Log Management, QRadar;

Languages: bash, C, Perl, Python, HTPL, and PHP.

November 2008 – September 2011 **L3 Senior Linux Sysadmin at IBM**

During my work at IBM SSO in France, I was assigned on multiple client Linux support. My experiences at IBM helped me to add *management*, *compliance* changes and incidents management in a very strict *ITIL* and *GDF* environment) and *process skills* to my profile.

Volunteer member of the IBM *Center of Excellence Linux*, working on solutions of standardization and validation of new technologies for Linux inside IBM France and for improving the quality of the delivery.

Development of yum repositories containing all the sofware written by the team and myself, most of them for Nagios/Centreon monitoring purposes.

technologies RHEL (Red Hat) and SLES (SuSE) physical and virtual servers (VMWare, HyperV), Red Hat and Linux HA (heartbeat and DRBD) clusters, IBM servers and IBM blades, Boot On San, VMware ESX management, Yum and RPM packaging. Bash, Python, PHP, and C development languages.

July 2008 – Septembre 2008 **C/C++ developer on Linux mobile at OpenPlug**

Porting of several MSDN library functions and win32 code, libraries and tools developed under Microsoft Visual C/C++, to the Moblin environment, an open source Linux-based operating system and application stack for Mobile Internet Devices, netbooks, nettops and embedded devices.

January 2007 – May 2008 **Linux and VMware Certified Engineer at IBM**

Senior Linux system administrator and VMware certified engineer at IBM Turin.

September 2003 – December 2006 **Linux System Developer at QiNet S.r.l.**

Developer of the '*QiLinux*' GNU/Linux distribution for *i586* and *ppc* architectures, the first Italian distribution *created from scratch*.

April 2006 – December 2006. *Leader of the team* that developed QiLinux 2.0, the derived commercial products and the educational live CD '*QiLinux Docet*' and '*Qiko Junior*'.

Between 2003 and 2006 I had an experience as a *Linux distribution developer* which involved me into many different activities ranging from the conception and creation from sources of all the pieces and technologies of a modern Linux distribution to the development and debugging in the Linux environment and the compliance with the available standards.

main tasks Creation and updates of all the *specfiles* shipped by the QiLinux project as a base for build the software for all the supported architectures. *Integration* in QiLinux of Linux desktop and server technologies. Products *quality*, *usability* analysis, *bug fixing*, and conformance to the LSB standards. Patching of the security issues and public release of the '*QiLinux Security Advisories*'. Installation and support of QiLinux boxes.

software `gitlab.mambasoft.it/openmamba/autospec` – development of the *autospec* and *libspec* software for speed up the packages update, and make it possible the continuous integration and testing of the new software in the mainstream distribution. Development of the C software what was responsible for the creation of the packages dependency chart and the PHP pages in the QiLinux web portal.

technologies All the Linux technologies ranging from the Linux kernel plus user-space related software to the system tools, the local, printing, and network services up to the development and desktop environments.

March 2003 – August 2003 **Cisco Network Specialist at Intesa Sanpaolo**

Working as a Cisco LAN/WAN network administrator expert in one of the most important banks of Italy.

October 2001 – January 2003 **Cisco Network Expert Engineer at Atlanet**

Cisco Engineer at Atlanet (FIAT's TLC venture now part of the BT Telecom group), working in a highly business and production critical environment.

Development of a fully featured software for generating Cisco router configurations from a minimal set of specifications given by a network architect to speed up and reduce the alea of the complex network migrations to the MPLS network cloud topology.

October 1999 – September 2001 **Cisco Network Engineer at Fiat GlobalValue**

Working either on-site or remotely for different Italian customers (Fiat ITS and GlobalValue, Sanpaolo, Miroglio Tessile) to develop, troubleshoot and manage their Cisco WAN networks.

Develop small network related scripts for calculating IP parameters and doing SNMP queries on routers not accessible by our team.

October 1998 – February 1999 **TEX developer at Academy of Sciences**

Development of a collection of TEX macros and document styles written in pure *plain*TEX for the *Royal Academy of Sciences of Turin*.

Source code: `github.com/madrisan/TeX-macros/tree/master/astmacro`

The aim of this project was to develop a document style, using the *plain*TEX language, to easily write Mathematics and Physics papers by emulating the Microsoft Word Look&Feel. The most difficult part was implementing a complete support for the TrueType fonts, not natively available under *plain*TEX.

Languages

Italian : native language,

French : bilingual proficiency,

English: professional working proficiency.

Education

September 2014 – **Coursera, edX, Udacity, FUN, Complexity Explorer, ...**

Lifelong learning for professional development and fun: more than 60 MOOCs completed so far, mainly on Data Science, Cloud Computing, parallel/generic/functional/web programming, Mathematics, Health and Environmental Sciences, and other domains.

October 1994 – July 1999 **Università degli Studi di Torino**

Master's degree in Applied Science, Mathematics and Computer Science.

September 1982 – June 1993 **Conservatory of Music 'G. Verdi', Torino**

Doctor of Musical Arts in Piano.

Certifications and Online Courses

2021. Urban Nature: Connecting Cities, Nature and Innovation – *Lund University*
2021. Greening the Economy: Sustainable Cities – *Lund University*
2021. Greening the Economy: Lessons from Scandinavia – *Lund University*
2021. Giving Helpful Feedback – *University of Colorado Boulder*
2021. Understanding Dementia – *The Wicking Demence Centre, University of Tasmania*
2021. Introduction to solar cells – *Technical University of Danemark*
2020. Preventing Dementia – *The Wicking Demence Centre, University of Tasmania*
2020. Science Matter: Let's Talk about COVID−19 – *Imperial College London*
2020. Global Warming: The Science and Modeling of Climate Change – *The University of Chicago*
2020. Air Pollution – a Global Threat to our Health – *København Universitet*
2019. Introduction to Complexity – *Santa Fe Institute*
2018. Introduction to Computation Theory – *Santa Fe Institute*
2018. Introduction to Renormalization – *Santa Fe Institute*
2017. Introduction to Cloud Infrastructure Technologies (LFS151.x) – *Linux Foundation*
2017. Fundamentals of Containers, Kubernetes, and Red Hat OpenShift (DO081x) – *Red Hat*
2017. Introduction to Cloud Foundry and Cloud Native Software Architecture (LFS132.x) – *Linux Foundation*
2017. Introduction to OpenStack (LFS152.x) – *Linux Foundation*
2017. Introduction to Kubernetes (LFS158.x) – *Linux Foundation*
2017. Introduction to DevOps: Transforming and Improving Operations (LFS161.x) – *Linux Foundation*
2017. Fractals and Scaling – *Santa Fe Institute*
2017. Compliance Basics for Developers (LFC291) – *The Linux Foudation*
2017. Introduction to MongoDB using the MEAN Stack (M101x) – *MongoDB University*
2016. Functional Programming Principles in Scala – *École Polytechnique Fédérale de Lausanne*
2016. Front-End Web Developer Nanodegree [*5 courses*] – *at&t, Google, GitHub, Hack Reactor*
2016. Introduction to Dynamical Systems and Chaos – *Santa Fe Institute*
2016. AWS Training — AWS Technical Essentials (version August 2016) – *Amazon Web Services*
2016. Advanced Styling with Responsive Design – *University of Michigan*
2016. MongoDB for Node.js Developers (M101JS) – *MongoDB University*
2016. Full Stack Web Development Specialization [*6 courses*] – *The Hong Kong University*
2016. Introduction to TypeScript (DEV201x) – *Microsoft*
2016. Introduction to jQuery (DEV208x) – *Microsoft*
2016. Shaping up with Angular.js – *Code School & Google*
2016. Using Databases with Python – *University of Michigan*
2016. Paradigms of Computer Programming [*2 courses*] – *Université catholique de Louvain*
2015. Introduction to HTML5 – *University of Michigan*

2015. Responsive Website Basics: Code with HTML, CSS, and JavaScript – *University of London*
2015. Using Python to Access Web Data – *University of Michigan*
2015. Cloud Network – *University of Illinois at Urbana-Champaign*
2015. Cloud Computing Applications – *University of Illinois at Urbana-Champaign*
2015. Statistics and R for Life Sciences (PH525.1x) – *Hardvard University*
2015. Introduction to R Programming (DAT204x) – *Microsoft*
2015. Learn HTML5 from W3C – *W3C*
2015. Data Science Specialization [*first 6 courses*] – *The Johns Hopkins University*
2015. Introduction to Java Programming – part 2 (COMP102.2x)
– *The Hong Kong University of Science and Technology*
2015. Introduction to Programming with Java Part 1: Starting to Program in Java (IT.1.1x)
– *Universidad Carlos III de Madrid*
2015. How to Learn: powerful mental tools to help you master tough subjects
– *University of California, San Diego*
2015. Big Data XSeries Certificate [*2 courses*] – *Berkeley University & Databricks*
2015. Heterogeneous Parallel Programming – *University of Illinois at Urbana-Champaign*
2015. Introduction à la programmation orientée objet en C++
– *École Polytechnique Fédérale de Lausanne*
2015. Optimisation Stochastique Évolutionnaire – *Université de Strasbourg*
2014. Machine Learning – *Stanford University*
2014. Competitive Strategy – *Ludwig–Maximilians Universität München*
2007. VMware Certified Professional on VI3 (VCP310)
2003. VPN-1/Firewall-1 Management II NG
2003. ZyXEL Certified Network Engineer
2002. CSPFA (Cisco Secure PIX Firewall Advanced)
2001. BSCN (Building Scalable Cisco Networks)
2000. CLSC (Cisco LAN Switch Configuration) Certified