

# Marcelo Abranches | Curriculum Vitae

2300 Arapahoe Avenue, 143, Boulder, CO, United States, 80302

📞 +1 (720) 485-9284 • ✉ made0661@colorado.edu  
🌐 github.com/mcabranches/

An experienced Network Engineer with a Master's degree in Computer Science and research experience in networks and computing infrastructure. Since 2002, working as a solutions engineer in the Information Technology (IT) field. Experienced in Computer Science, and IT infrastructure. Focused on researching and contributing to the Computer Science/Engineering field. Currently, Marcelo is a Ph.D. Candidate in the Department of Electrical, Computer and Energy Engineering at the University of Colorado, Boulder.

## Previous and Current Employment

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### Ministry of Transparency and Control (MTCGU)

Brasília/Brazil

Information Technology Solutions Engineer

July 2006 – present (on a leave for Ph.D studies)

- Researching and defining the best infrastructure technologies to enhance MTCGU's auditing and security capabilities.
- Responsible for the deployment of technologies such as IPSEC and Active Directory Rights Management Services (ADRMS) to enable MTCGU to safeguard sensitive audit data and protect against data leakage.
- Introduced configuration and compliance automation tools to establish a stable, well-configured infrastructure.
- Architected storage, computing, virtualization and web solutions.
- Led the migration of MTCGU services to container and Kubernetes technology.
- Developed a system based on Spark to help MTCGU to audit logs from its multiple systems.

### SERPRO - Serviço Federal de Processamento de Dados

Brasília/Brazil

IT Analyst

September 2004–June 2006

- Managed and maintained the email service of SERPRO (Exchange, Postfix and Cyrus IMAP Server).
- Developed an audit tool that was used for years to track emails within SERPRO.

### Brasil Telecom

Brasília/Brazil

Internship

May 2002 - June 2004

- Managed the provisioning of SDH (Synchronous Digital Hierarchy) circuits between Brasil Telecom's clients.
- Ensured that the circuits' inventory was up-to-date

## Education

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### Academic Qualifications.....

#### Department of Electrical, Computer and Energy Engineering

Boulder/USA

○ Ph.D. in Computer Engineering (in progress), University of Colorado

2018–present

#### Department of Computer Science

Brasília/Brazil

○ M.Sc. in Applied Computing, University of Brasília

2014–2016

#### Department of Electrical Engineering

Brasília/Brazil

○ Bachelors of Engineering in Communication Networks, University of Brasília

1998–2004

## Publications

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- **Marcelo Abranches, Oliver Michel, Eric Keller and Stefan Schmid, "Efficient Network Monitoring Applications in the Kernel with eBPF and XDP,"** 2021 IEEE Conference on Network Function Virtualization and Software Defined Networks (NFV-SDN), 2021, pp. 28-34, doi: 10.1109/NFV-SDN53031.2021.9665095.
- **Marcelo Abranches, Karl Olson, and Eric Keller. "Infinity: A Scalable Infrastructure for In-Network Applications."** 2021 IFIP/IEEE International Symposium on Integrated Network Management (IM). IEEE, 2021.
- **Marcelo Abranches and Eric Keller, "A Userspace Transport Stack Doesn't Have to Mean Losing Linux Processing,"** In: 2020 IEEE Conference on Network Function Virtualization and Software Defined Networks (NFV-SDN), 2020, pp. 84-90, doi: 10.1109/NFV-SDN50289.2020.9289867.
- **Marcelo Abranches, Sepideh Goodarzy, Maziyar Nazari, Shivakant Mishra, Eric Keller. Shimmy: Shared Memory Channels for High Performance Inter-Container Communication** In: USENIX Workshop on Hot Topics in Edge Computing (HotEdge), July, 2019.
- **ABRANCHES, M. ; SOLIS P. . An Algorithm Based on Response Time and Traffic Demands to Scale Containers on a Cloud Computing System.** In: The 15th IEEE International Symposium on Network Computing and Applications (NCA 2016), 2016, Cambridge. Proceedings of the The 15th IEEE International Symposium on Network Computing and Applications (NCA 2016). Piscataway: The Institute of Electrical and Electronics Engineers, Inc., 2016. v. 1. p. 343-350.
- **ABRANCHES, M. ; SOLIS P.; . PAS-CA: A Cloud Computing Auto-scalability Method for High-demand Web Systems.** In: The 16th IEEE International Symposium on Network Computing and Applications Cambridge, MA, USA. Piscataway: Institute of Electrical and Electronic Engineers IEEE, 2017. v. 1. p. 285-288.
- **ABRANCHES, M. ; SOLIS P. . Um Algoritmo de Auto Elasticidade para Ambientes de Computação em Nuvem e Tráfego Autossimilar.** In: 2016 XLII Latin American Computing Conference CLEI, 2016, Valparaíso. 2016 Latin American Computing Conference. Piscataway: Institute of Electrical and Electronic Engineers IEEE, 2016. v. 1. p. 244-252.

## Technical and Personal skills

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- **Programming Languages:** Proficient in: Assembly, C, C++, P4, Shell Script, Python, Octave, Matlab, Arduino, TeX, VBscript and Powershell.
- **IT Automation Tools:** Puppet, Ansible
- **Infrastructure:** Linux, VMware, HyperV, Docker, Flannel, Kubernetes, Haproxy, F5, Active Directory, AD RMS, ADFS.
- **Storage:** IBM V7000, IBM 5020, Netapp, Owncloud.
- **Databases:** Redis, MySQL, Postgres.
- **BigData:** Spark, Flume.
- **AI:** Tensorflow, PyBrain.
- **Simulators:** Mininet, NS3
- **General Business Skills:** Good presentation skills, works well in a team.

## Awards

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- **ConSerpro 2005** - Serpro Conference of Technology and Management Applied to the Brazilian Government Quality of Service in Mobile Networks - Best Research Project - Technological Infrastructure

- **IEEE Conference on Network Function Virtualization and Software Defined Networks - 9-11 November 2021 // Heraklion, Greece** - Best Paper Award - Efficient Network Monitoring Applications in the Kernel with eBPF and XDP

## Scholarships

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- **CAPES Foundation** - Agency under the Ministry of Education of Brazil, in order to pursue his Ph.D. degree at the University of Colorado, Boulder.

## References

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- Up to 4 references available on request