

# Marinho Pilla Barcellos

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**Profile.** Chair of the Computer Networks Research Group at UFRGS. Distinguished researcher: holder of CNPq Level 1D Fellowship. Community service with ACM to increase geo and gender diversity in the field. Research topics over the years: Computer Networks, Internet Measurements, Network Security. Research: 20 journal papers, 54 conference papers, 2 General Co-Chair, 5 Program Co-Chair. Projects chaired: 9. Supervising: 6 PhD students completed and 5 ongoing, 19 MSc completed and 1 ongoing, 24 Undergraduates completed, 4 ongoing. Teaching: 9 awards, 22 years experience, courses lectured on Computer Networks, Systems Security, and Operating Systems.

**Employment.** Associate professor; UFRGS, Brazil – 2008-present: Postgraduate teaching. Undergraduate teaching. Supervision of graduate and undergraduate students. Administrative duties. Adjunct professor; PUC-RS catholic university, Brazil – 2008-2009. Undergraduate teaching. Research activities. Full-time Adjunct professor; UNISINOS university, Brazil – 1998-2008. Postgraduate teaching. Undergraduate teaching. Supervision of graduate and undergraduate students. Administrative duties.

**Education.** University of Newcastle upon Tyne, UK – Ph.D. Computer Science, 1998. Federal University of Rio Grande do Sul, Brazil – M.Sc. Computer Science, 1993. Federal University of Rio Grande do Sul, Brazil – B.Sc. Computer Science, 1989.

## Selected Journal Publications 2018-2014

1. M. Barcellos, Diego Aranha: Research in Security and Privacy in Brazil: IEEE Security & Privacy (to appear).
2. R. B. Mansilha, M. P. Barcellos, Emilio Leonardi, Dario Rossi: Exploiting parallelism in hierarchical content stores for high-speed ICN routers. *Computer Networks* 125: 132-145 (2017)
3. D. S. Marcon, Fabrício M. Mazzola, M. P. Barcellos: Achieving minimum bandwidth guarantees and work-conservation in large-scale, SDN-based datacenter networks. *Computer Networks* 127: 109-125 (2017)
4. R. Antunes, M. B. Lehmann, R. B. Mansilha, L. P. Gaspar, M. P. Barcellos: NDNrel: A mechanism based on relations among objects to improve the performance of NDN. *J. Network and Computer Applications* 87: 73-86 (2017)
5. D. S. Marcon, M. C. Neves, R. Oliveira, L. P. Gaspar, M. P. Barcellos: PredCloud: Providing predictable network performance in large-scale OpenFlow-enabled cloud platforms through trust-based allocation of resources. *Computer Communications* 91-92: 44-61 (2016)
6. M. Luizelli, L. Bays, L. Buriol, Antônio M. Pilla Barcellos, L. P. Gaspar: How physical network topologies affect virtual network embedding quality: A characterization study based on ISP and datacenter networks. *J. Network and Computer Applications* 70: 1-16 (2016)
7. L. Bays, R. Oliveira, L. S. Buriol, M. P. Barcellos, L. P. Gaspar: A toolset for efficient privacy-oriented virtual network embedding and its instantiation on SDN/OpenFlow-based substrates. *Computer Communications* 82: 13-27 (2016)
8. W. Cordeiro, F. Santos, M. P. Barcellos, L. P. Gaspar, Hanna Kavalionak, Alessio Guerrieri, A. Montresor: Making puzzles green and useful for adaptive identity management in large-scale distributed systems. *Computer Networks* 95: 97-114 (2016)
9. P. García López, A. Montresor, Dick H. J. Epema, Anwitaman Datta, Teruo Higashino, Adriana Iamnitchi, M. P. Barcellos, Pascal Felber, Etienne Rivière: Edge-centric Computing: Vision and Challenges. *Computer Communication Review* 45(5): 37-42 (2015)
10. R. Oliveira, D. S. Marcon, L. Bays, M. C. Neves, L. P. Gaspar, Deep Medhi, M. P. Barcellos: Opportunistic resilience embedding (ORE): Toward cost-efficient resilient virtual networks. *Computer Networks* 89: 59-77 (2015)
11. L. Bays, R. Oliveira, M. P. Barcellos, L. P. Gaspar, Edmundo Roberto Mauro Madeira: Virtual network security: threats, countermeasures, and challenges. *J. Internet Services and Applications* 6(1): 1:1-1:19 (2015)

## Selected Conference Publications 2018-2014

12. P. Marcos, M. Chiesa, L. F. Müller, P. Kathiravelu, C. Dietzel, M. Canini, M. P. Barcellos: Dynam-IX: a Dynamic Interconnection eXchange. *ACM CoNEXT 2018*: 1-13 (to appear)
13. L. Freire, M. C. Neves, A. E. Schaeffer Filho, M. P. Barcellos: Verification of P4 Programs in Feasible Time using Assertions. *ACM CoNEXT 2018*: 1-13 (to appear)
14. F. Boeira, M. Asplund, M. P. Barcellos: Mitigating Position Falsification Attacks in Vehicular Platooning. *IEEE VNC 2018*: 1-6 (to appear)
15. F. Boeira, M. Asplund, M. P. Barcellos: Vouch: A Secure Proof-of-Location Scheme for VANETs. *ACM MSWiM 2018*: 1-8.

16. L. Freire, M. C. Neves, L. Leal, K. Levchenko, A. E. Schaeffer Filho, M. P. Barcellos: Uncovering Bugs in P4 Programs with Assertion-based Verification. ACM SOSR 2018: 4:1-4:7
17. Fabricio Mazzola, D. Marcon, M. Barcellos: It's About Time: Analyzing Flow Table Update Latency in SDN Switch Architectures, IFIP Networking 2018 Conference, pp.1-9, Zurich, May 14-16.
18. Y. Alowayed, M. Canini, P. Marcos, M. Chiesa, M. P. Barcellos: Picking a Partner: A Fair Blockchain Based Scoring Protocol for Autonomous Systems. ACM ANRW 2018: 33-39
19. F. Boeira, M. P. Barcellos, Edison Pignaton de Freitas, Alexey Vinel, M. Asplund: Effects of colluding Sybil nodes in message falsification attacks for vehicular platooning. IEEE VNC 2017: 53-60
20. D. S. Marcon, M. P. Barcellos: Packer: Minimizing multi-resource fragmentation and performance interference in datacenters. IFIP Networking 2017: 1-9
21. A. F. Ocampo, J Gil-Herrera, P. Heleno Isolani, M. C. Neves, Juan F. Botero, S. Latré, L. Granville, M. P. Barcellos, L. P. Gaspar: Optimal Service Function Chain Composition in Network Functions Virtualization. AIMS 2017: 62-76
22. M. B. Lehmann, M. P. Barcellos, A. Mauthe: Providing producer mobility support in NDN through proactive data replication. IEEE NOMS 2016: 383-391
23. A. Wermann, M. Bortolozzo, E. da Silva, A. E. Schaeffer Filho, L. P. Gaspar, M. P. Barcellos: ASTORIA: A framework for attack simulation and evaluation in smart grids. IEEE NOMS 2016: 273-280
24. R. B. Mansilha, L. Saino, M. P. Barcellos, M. Gallo, E. Leonardi, D. Perino, D. Rossi: Hierarchical Content Stores in High-Speed ICN Routers: Emulation and Prototype Implementation. ACM ICN 2015: 59-68
25. D. S. Marcon, M. C. Neves, R. Oliveira, L. Bays, Raouf Boutaba, L. P. Gaspar, M. P. Barcellos: IoNCloud: Exploring application affinity to improve utilization and predictability in datacenters. IEEE ICC 2015: 5497-5503
26. T. Petry, R. da Silva, M. P. Barcellos: Off the wire control: Improving the control plane resilience through cellular networks. IEEE ICC 2015: 5308-5313
27. M. Luizelli, L. Bays, L. Buriol, M. P. Barcellos, L. P. Gaspar: Piecing together the NFV provisioning puzzle: Efficient placement and chaining of virtual network functions. IEEE IM 2015: 98-106. *Best Student Paper Award*.
28. D. S. Marcon, M. P. Barcellos: Predictor: Providing fine-grained management and predictability in multi-tenant datacenter networks. IEEE IM 2015: 71-79
29. R. Antunes, M. B. Lehmann, R. B. Mansilha, C. Rothenberg, L. P. Gaspar, M. P. Barcellos: CCNrel: Leveraging relations among objects to improve the performance of CCN. IEEE IM 2015: 199-206
30. L. F. Müller, R. Oliveira, M. Luizelli, L. P. Gaspar, M. P. Barcellos: Survivor: An enhanced controller placement strategy for improving SDN survivability. IEEE GLOBECOM 2014: 1909-1915.
31. M. Luizelli, L. Bays, M. P. Barcellos, L. P. Gaspar: HIPER: Heuristic-based infrastructure expansion through partition reconnection for efficient Virtual Network Embedding. ACM/IEEE/IFIP CNSM 2014: 91-99
32. L. Bays, R. Oliveira, L. Buriol, M. P. Barcellos, L. P. Gaspar: A heuristic-based algorithm for privacy-oriented virtual network embedding. IEEE NOMS 2014: 1-8
33. F. Santos, M. P. Barcellos, L. P. Gaspar: Slowing down to speed up: Protecting users against massive attacks in content distribution systems. IEEE NOMS 2014: 1-7

### Professional service

- ACM SIGCOMM Director of Diversity and Outreach. 2017-present. [link](#)
- General Co-Chair of ACM SIGCOMM 2016, with Jon Crowcroft. <https://conferences.sigcomm.org/sigcomm/2016/>
- General Co-Chair SBC Brazilian Symposium on Computer Networks and Distributed Systems (SBRC 2010), with L. Gaspar. <http://sbrc2010.inf.ufrgs.br/index.html>
- TPC Co-Chair Passive and Active Measurements (PAM 2019), with David Choffnes. The first time PAM happens in South America. <http://pam2019.niclabs.cl>
- TPC Co-Chair SBC Brazilian Symposium on Computer Networks and Distributed Systems (SBRC 2016), with Antonio Loureiro. <http://www.sbrc2016.ufba.br/comite/comite-de-programa/en/>
- TPC Co-Chair SBC Brazilian Symposium on Information Security and Computational Systems (SBSeg 2014) with Diego Aranha. <http://www.sbseg2014.dcc.ufmg.br/eng/committees/>
- TPC Co-Chair IEEE Peer-to-Peer Conference (IEEE P2P 2015), with Jay Lorch. <http://wan.poly.edu/p2p2015/>

### Project Coordination

- CNPq Level 1D Fellowship (Total 401 grantees in Computer Science, with the top 160 at Level 1)
- P4Sec: Security of programmable data planes. 2017-present. (NSF, RNP/CTIC) [link](#)
- GT-IPE Analytics: Internet measurements and analytics. 2017-present (RNP) [link](#)
- Phoenix: towards survivable SDNs. 2014-2017 (CNPq)
- LiveSec: increasing the security of live P2P streaming systems. 2012-2014 (CNPq)

### Teaching Awards

- 5 Faculty Best Lecturer Awards UFRGS: award provided to two faculty members every semester according to graduating students' vote among department faculty members (~80-strong): 2017/1, 2016/2, 2016/1, 2015/1, 2011/2
- 4 Faculty Best Lecturer Awards UNISINOS: award provided to two faculty members every semester according to graduating students' vote among department faculty members (around 40 at the time): 2007/2, 2007/1, 2006/1, 2002/2