MIGUEL CARDOSO NEVES

CONTACT INFORMATION

Faculty of Computer Science
Dalhousie University
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EDUCATION

Federal University of Rio Grande do Sul (UFRGS), Porto Alegre – RS, Brazil
Ph.D., Computer Science, March 2015 – May 2020.

University of California San Diego (UCSD), San Diego – CA, USA
Research Scholar, Systems and Networking, October 2017 – May 2018.

Federal University of Rio Grande do Sul (UFRGS), Porto Alegre – RS, Brazil
B.Eng., Computer Engineering, August 2009 – February 2015.

RESEARCH INTERESTS

Broadly computer networking and distributed systems including ML-based systems, software-defined networking, network verification and systems security.

WORK EXPERIENCE

Dalhousie University — Post-doctoral Researcher, Jan 2021 – current

Instructor, S22
Computer networks

Teaching Assistant, W21/W22
Software Defined Networking

Pontifical Catholic University of Rio Grande do Sul (PUCRS) — Research Associate, Aug 2020 – Mar 2021

Federal University of Rio Grande do Sul — Part-time Professor, Mar 2019 – Jul 2020
Programming in C

Federal University of Rio Grande do Sul — Teaching Assistant, Jun-Oct 2017
Cybersecurity

Federal University of Rio Grande do Sul — Teaching Assistant, Mar-Dec 2015
Computer networks

HONORS

IEEE NetSoft Best Reviewer Award, 2021
IFIP TC6 Student Travel Grant, 2019

ACM SIGCOMM Student Travel Grant, 2018
ACM CCS Student Travel Grant, 2017
ACM Student Research Competition at SIGCOMM - 3rd prize, 2017
ACM SIGCOMM Student Travel Grant, 2017
ISOC NDSS Student Travel Grant, 2017
CNPq Fellowship for Graduate Study, 2017
CAPES Fellowship for Graduate Study, 2015

CONFERENCE PAPERS

[C20] Tajbakhsh, H.; Parizotto, R.; Neves, M.; Schaeffer-Filho, A.; Haque, I. Accelerator-Aware In-Network Load Balancing for Improved Application Performance. IFIP/TC6 Networking **(NETWORKING)**, 2022, Catania, Italy. *To appear*.

[C19] Kuzniar, C.; Neves, M.; Gurevich, V.; Haque, I. IoT Device Fingerprinting on Commodity Switches. IEEE/IFIP Network Operations and Management Symposium **(NOMS)**, 2022. *To appear*.

[C18] Souza, P.; Neves, M.; Kayser, C.; Rubin, F.; Boeira, C.; Moreira, J.; Bordin, B.; Ferreto, T. Predicting and Avoiding SLA Violations of Containerized Applications using Machine Learning and Elasticity. In: 12th International Conference on Cloud Computing and Services Science **(CLOSER)**, 2022, Virtual event.

[C17] Siddique, H.; Neves, M.; Kuzniar, C.; Haque, I. On Network-accelerated ML-based Distributed Computer Vision Systems. IEEE International Conference on Parallel and Distributed Systems **(ICPADS)**, 2021.

[C16] Boeira, C.; Neves, M.; Ferreto, T.; Haque, I. Characterizing network performance of single-node large-scale container deployments. IEEE International Conference on Cloud Networking **(CloudNet)**, 2021.

[C15] Shojaee, M.; Neves, M.; Haque, I. SafeGuard: Congestion and Memory-aware Failure Recovery in SD-WAN. IFIP/IEEE Conference on Network and Service Management **(CNSM)** - Mini-Conference, 2020.

[C14] Neves, M.; Huffaker, B.; Levchenko, K.; Barcellos, M. P. Dynamic Property Enforcement in Programmable Data Planes. IFIP/TC6 Networking **(NETWORKING)**, 2019.

[C13] Neves, M.; Freire, L.; Schaeffer-Filho, A.; Barcellos, M. P. Verification of p4 programs in feasible time using assertions. In: Proceedings of the 14th International Conference on emerging Networking EXperiments and Technologies **(CoNEXT)**, 2018.

[C12] Freire, L.; Neves, M.; Leal, L.; Schaeffer-Filho, A. E.; Levchenko, K.; Barcellos, M. P. Uncovering bugs in P4 programs with assertion-based verification. 4th ACM Symposium on SDN Research **(SOSR)**, 2018.

[C11] Isolani, P. H.; Latré, S.; Ocampo, A. F.; Gil-Herrera, J.; Botero, J. F.; Neves, M.; Barcellos, M. P.; Gaspary, L. P. Optimal Service Function Chain Composition in NFV Resource Allocation, **AIMS** 2017, Springer LNCS.

[C10] Freire, L. M.; Neves, M. C.; Schaeffer-Filho, A. E.; Barcellos, M. P. Combatendo vulnerabilidades em programas P4 com verificação baseada em asserções. Brazilian Symposium on Information and Computational Systems Security **(SBSeg)**, 2017.

[C9] Neves, M. C.; Oliveira, R. R.; Mazzola, F. M.; Marcon, D. S.; Gaspary, L. P.; Barcellos, M. P. Contando os Segundos: Avaliação de estratégias de domínio temporal para a gerência de regras em redes SDN. Brazilian Symposium on Computer Networks and Distributed Systems **(SBRC)**, 2016.

[C8] Marcon, D. S.; Neves, M. C.; Oliveira, R. R.; Bays, L. R.; Boutaba, R.; Gaspary, L. P.; Barcellos, M. P. IoNCloud: exploring application affinity to improve utilization and predictability in datacenters. IEEE International Conference on Communications **(ICC)**, 2015.

[C7] Marcon, D. S.; Bittencourt, L. F.; Dantas, R.; Neves, M. C.; Madeira, E. R. M.; Fernandes, S.; Kamienski, C. A.; Barcellos, M. P.; Gaspary, L. P.; Fonseca, N. L. S. Workflow Specification and Scheduling with Security Constraints in Hybrid Clouds. IEEE Latin America Conference on Cloud Computing and Communications **(LatinCloud)**, 2013.

[C6] Marcon, D. S.; Oliveira, R. R.; Neves, M. C.; Buriol, L. S.; Gaspary, L. P.; Barcellos, M. P. Trust-based Grouping for Cloud Datacenters: improving security in shared infrastructures. IFIP/TC6 Networking **(NETWORKING)**, 2013.

[C5] Oliveira, R. R.; Marcon, D. S.; Bays, L. R.; Neves, M. C.; Buriol, L. S.; Gaspary, L. P.; Barcellos, M. P. No More Backups: Toward Efficient Embedding of Survivable Virtual Networks. IEEE International Conference on Communications **(ICC)**, 2013.

[C4] Neves, M. C.; Marcon, D. S.; Oliveira, R. R.; Bays, L. R.; Buriol, L. S.; Gaspary, L. P.; Barcellos, M. P. IoNCloud: uma abordagem não entrópica orientada a tráfego para reserva e isolamento de recursos em nuvens. Brazilian Symposium on Computer Networks and Distributed Systems **(SBRC)**, 2013.

[C3] Oliveira, R. R.; Bays, L. R.; Marcon, D. S.; Neves, M. C.; Buriol, L. S.; Gaspary, L. P.; Barcellos, M. P. DoS-Resilient Virtual Networks through Multipath Embedding and Opportunistic Recovery. ACM Symposium on Applied Computing **(SAC)**, 2013.

[C2] Marcon, D. S.; Neves, M. C.; Oliveira, R. R.; Buriol, L. S.; Gaspary, L. P.; Barcellos, M. P. Mitigando Ataques de Egoísmo e Negação de Serviço em Nuvens via Agrupamento de Aplicações. Brazilian Symposium on Information and Computational Systems Security **(SBSeg)**, 2012.

[C1] Oliveira, R. R.; Bays, L. R.; Marcon, D. S.; Neves, M. C.; Buriol, L. S.; Gaspary, L. P.; Barcellos, M. P. Redes Virtuais Seguras: Uma Nova Abordagem de Mapeamento para Proteger contra Ataques de Disrupção na Rede Física. Brazilian Symposium on Information and Computational Systems Security **(SBSeg)**, 2012.

JOURNAL PAPERS

[J4] M. Neves, B. Huffaker, K. Levchenko and M. Barcellos. Dynamic Property Enforcement in Programmable Data Planes. In: IEEE/ACM Transactions on Networking **(ToN)**, vol. 29, no. 4, pp. 1540-1552, Aug. 2021.

[J3] Weber, J.; Neves, M.; Ferreto, T. VANET simulators: an updated review. In: Journal of the Brazilian Computer Society **(JBCS)**, 27, 8 (2021).

[J2] Marcon, D. S.; Neves, M. C.; Oliveira, R. R.; Gaspary, L. P.; Barcellos, M. P. PredCloud: Providing predictable network performance in large-scale Openflow-enabled cloud platforms through trust-based allocation of resources. In: Elsevier Journal of Computer Communications **(COMCOM)**, Volumes 91-92, October 2016.

[J1] Oliveira, R. R.; Marcon, D. S.; Bays, L. R.; Neves, M. C.; Gaspary, L. P.; Medhi, D.; Barcellos, M. P. Opportunistic Resilience Embedding (ORE): Toward Cost-efficient Resilient Virtual Networks. In: Elsevier Computer Networks **(COMNET)**, Volume 89, October 2015.

THESES

Enforcing Properties in Programmable Networks. Ph.D. Thesis. Federal University of Rio Grande do Sul (UFRGS). 2020. Advisor: Marinho P. Barcellos.

On Time-based Strategies for Optimizing Flow Tables in SDN. Bachelor's Thesis. Federal University of Rio Grande do Sul (UFRGS). 2014. Advisor: Marinho P. Barcellos.

STUDENTS & MENTEES

Conrado Boeira – PhD – Dalhousie University (2020-current)
Carson Kuzniar – PhD – Dalhousie University (2020-current)
Zolboo Erdenebaatar – PhD – Dalhousie University (2020-current)
Hesam Tajbakhsh – PhD – Dalhousie University (2020-current)
Monzurul Amin – Msc – Dalhousie University (2020-current)
Jack Zhao – Msc – Dalhousie University (2020-current)
Hisham Siddique – Msc – Dalhousie University (2020-2021)
Pulkit Garg – Undergrad – Dalhousie University (2020-2021)
Julia Weber – PhD – PUCRS (2020-2021)
Meysam Shojaee – Msc – Dalhousie University (2020)
Gabriel Martins – Undergrad – UFRGS (2018)

EXTERNAL SERVICE

Program Committee Member
IEEE URUCON 2021

Ad Hoc Reviewer

2022
IEEE Vehicular Technology Magazine (VTM)

2021
IEEE Communications Magazine (ComMag)
IEEE Conference on Network Softwarization (NetSoft)
IEEE Transactions on Network and Service Management (TNSM)

2020
IEEE Conference on Network Softwarization (NetSoft)
Springer Journal of Network and Systems Management (JNSM)
Wiley International Journal of Network Management (IJNM)
IEEE Transactions on Vehicular Technology (TVT)

2019
IEEE Symposium on Computers and Communications (ISCC)
IEEE Conference on Network Softwarization (NetSoft)
IFIP/IEEE International Conference on Network and Service Management (CNSM)
IEEE Journal on Selected Areas in Communications (JSAC)
Springer Journal of Network and Systems Management (JNSM)

2017
ACM Internet Measurement Conference (IMC)
Brazilian Symposium on Computer Networks and Distributed Systems (SBRC)
Brazilian Symposium on Information and Computational Systems Security (SBSeg)

2016
Brazilian Symposium on Computer Networks and Distributed Systems (SBRC)

2015
Brazilian Symposium on Information and Computational Systems Security (SBSeg)

REFERENCES

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