

Pedro de Botelho Marcos - Assistant Professor

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Academics

Ph.D. in Computer Science, (03/2016-09/2019)
Federal University of Rio Grande do Sul - UFRGS, Porto Alegre, Brazil
Advisor: Prof. Marinho Barcellos
Co-Advisor: Prof. Marco Canini (KAUST)
Thesis title: Towards a Dynamic Internet Interconnection Ecosystem for Improved Wide-Area Traffic Delivery
Keywords: peering, interconnection, IXP, Internet measurements, wide-area traffic delivery

M.Sc. in Computer Science, (03/2011-01/2013)
Federal University of Rio Grande do Sul - UFRGS, Porto Alegre, Brazil
Advisor: Prof. Claudio Geyer
Thesis title: Maresia: MapReduce in a simple architecture
Keywords: MapReduce, fault tolerance, Distributed Hash Tables

B.Eng. in Computer Engineering, (03/2006-12/2010)
Federal University of Rio Grande - FURG, Rio Grande, Brazil

Research Visits

Visiting Researcher (01/2020-02/2020)
Max Plack Institute for Informatics - MPI-INF, Saarbrücken, Germany
Host: Prof. Anja Feldmann
Keywords: Internet routing, routing security, AS-Path Prepending, Internet measurements

Visiting Ph.D. student (09/2017-12/2017)
King Abdullah University of Science and Technology - KAUST, Thuwal, Saudi Arabia
Host: Prof. Marco Canini
Keywords: peering, interconnection agreements, blockchain, wide-area traffic delivery

Research Interests

My research interests lie at the crossroads of theory and practice of computer networks. I am mainly interested in measuring and analyzing aspects related to the Internet interconnection/peering ecosystem and inter-domain routing. My current research topics include inbound traffic engineering techniques; Internet routing security; remote peering; BGP communities; best routing operational practices and the Brazilian General Data Protection Law (LGPD). My research has been funded by University grants, LACNIC/FRIDA, and FAPESP/MCTI/MCom/CGI.br.

Research Scholarships

Research scholarship - 05/2017-04/2018

Scholarship from the Brazilian National Research and Education Network (RNP), Brazil, to work on the project GT-IPÊ-Analytics on activities related to the network analytics and Internet measurements. Supervisor: Prof. Marinho Barcellos.

Master's scholarship - 03/2011-01/2013

Scholarship from the Coordination for the Improvement of Higher Education Personnel (CAPES), Brazil, to support studies during the masters. Supervisor: Prof. Claudio Geyer.

Undergraduate scholarship - 06/2006-12/2010

Scholarship from the National Council for Scientific and Technological Development (CNPq), Brazil, to work in the SIM-3D project on activities related to digital manufacturing. Supervisors: Prof. Nelson Lopes Duarte Filho and Prof. Silvia Silva da Costa Botelho.

Professional Activities

Assistant Professor, Federal University of Rio Grande - FURG, Brazil, 09/2019-present
Courses: Operating Systems; Computer Networks; Internet Measurements

Lecturer, Federal University of Rio Grande - FURG, Brazil, 09/2013-08/2019
Courses: Operating Systems; Computer Networks; Distributed Systems

CTO, Zetaflops - High-Performance Computing Ltda., Brazil, 04/2009-02/2011
Designing and developing solutions benefiting from GPUs parallel processing capabilities

Funded Projects

Characterizing and modeling Internet routing security and traffic engineering aspects (2022-2024) - FAPESP/MCTI/MCom/CGI.br - 300K BRL (~60K USD) - with Italo Cunha (UFMG) and Ronaldo Ferreira (UFMS)

Investigating the impacts of Remote Peering on Internet routing (2021-2023) - LACNIC/FRIDA - 100K BRL (~20K USD)

Understanding the impact of ASPP on Internet routing security (2020-2022) - LACNIC/FRIDA - 80K BRL (~16K USD)

Selected Publications (conferences and journals)

Mazzola, Fabricio; **Marcos, Pedro**; Castro, Ignacio; Luckie, Matthew; Barcellos, Marinho. *On the Impacts of Remote Peering to Internet Traffic Delivery*, In: PAM 2022, March 2022.

Marcos, Pedro; Prehn, Lars; Leal, Lucas; Dainotti, Alberto; Feldmann, Anja; Barcellos, Marinho. *AS-Path Prepending: there is no rose without a thorn*, In: ACM IMC '20, October 2020.

Marcos, Pedro; Chiesa, Marco; Dietzel, Christoph; Canini, Marco; Barcellos, Marinho. *A Survey on the Current Internet Interconnection Practices*, In: ACM SIGCOMM Computer Communication Review, January 2020.

Marcos, Pedro; Chiesa, Marco; Muller, Lucas; Kathiravelu, Pradeeban; Dietzel, Christoph; Canini, Marco; Barcellos, Marinho. *Dynam-IX: a Dynamic Interconnection eXchange*, In: ACM CoNEXT '18, December 2018.

Alowayed, Yousef; Canini, Marco; **Marcos, Pedro**; Chiesa, Marco; Barcellos, Marinho. *Picking a Partner: A Fair Blockchain-Based Scoring Protocol for Autonomous Systems*, In: ACM, IRTF & ISOC Applied Networking Research Workshop 2018 (ANRW '18), July 2018.

Kathiravelu, Pradeeban; Chiesa, Marco; **Marcos, Pedro**; Canini, Marco; Veiga, Luís. *Moving Bits with a Fleet of Shared Virtual Routers*. In: IEEE/IFIP Networking '18, May 2018.

Kolberg, Wagner; **Marcos, Pedro**; Anjos, Julio; Miyazaki, Alexandre; Geyer, Claudio; Arantes, Luciana. *MRSB - A MapReduce simulator over SimGrid*. In: Parallel Computing, v. 39, p. 233-244, 2013.

Duarte Filho, Nelson; Botelho, Silvia; Carvalho, Jonata; **Marcos, Pedro**; Maffei, Renan; Remor, Rodrigo; Oliveira, Rodrigo; Hax, Vinicius. *An immersive and collaborative visualization system for digital manufacturing*. International Journal, In: Advanced Manufacturing Technology, v. 50, p. 1253-1261, 2010.

Posters

Marcos, Pedro; Barcellos, Marinho. *Understanding How does AS-Path Prepending can compromise the security of Internet routing*, In: Ph.D. School of the Passive and Active Measurement Conference, PAM'19, March 2019.

Marcos, Pedro; Chiesa, Marco; Muller, Lucas; Kathiravelu, Pradeeban; Dietzel, Christoph; Canini, Marco; Barcellos, Marinho. *Dynam-IX: a Dynamic Interconnection eXchange*, In: Posters and Demos of ACM SIGCOMM'18, August 2018.

Marcos, Pedro; Wermann, Alexandre; Bertholdo, Leandro; Barcellos, Marinho. *DYNAMIX: A Dynamic Agreement Marketplace on Internet eXchange Points*. In: Student Workshop ACM CoNEXT'16, December 2016.

Service

TPC Member: PAM 2021, Student Workshop CoNEXT'2021

Journal reviews: ACM SIGCOMM Computer Communication Reviews (2019-), Computer Networks (2020-)

External reviewer: ISCC'19, IMC'17, SBRC'17

Local organizing committee: SIGCOMM'16

Juror: ACM SIGCOMM 2021 Student Research Competition

Awards

Publications: 3rd-place in the Student Research Competition of the ACM SIGCOMM'18

Travel grants award: PAM'19, ACM SIGCOMM'18, ACM IMC'17, ACM CoNEXT'16

Outstanding lecturer in Computer Engineering - FURG: 2014, 2015, 2016