

Resume of Matheus C. Santos

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Educational Background

PhD in Computer Science at UFMG (Universidade Federal de Minas Gerais) (2010 - present)
Visiting PhD student at Brown University (Sep. 2012 - Sep. 2013)
MS degree in Computer Science at UFMG (Feb. 2010)
BS degree in Computer Science at UFMG (2007)

Experience

PhD Student at UFMG (since 2010)

- **Final Dissertation:** Prioritizing Performance on Distributed Systems.
- **Development of Faster:** a low latency distributed computing framework based on object-functional programming designed to be flexible, efficient and compatible with Apache Spark operators. It relies on advanced C++ features to provide a powerful and easy to use programming interface. Using specialized operators, Faster reaches **30x Speedup over Spark** running PageRank on a 1 billion edge graph (C++, OpenMP, MPI, GTest) ¹.
- Development of RNet, a scalable and realistic random network generator for large scale networks (C++, OpenMP)².
- Development of scalable parallel and distributed graph algorithms like Betweenness Centrality and Community detection algorithms for large networks (C++, CUDA, OpenMP, MPI, Hadoop and Spark)

Intern at Center for Analysis and Modeling of Systems and Social Media (CAMPS) at UFMG (since 2010)

- Internal cluster administration. Servers and networking equipment purchase specification, operational system, configuration management and monitoring deployment and configuration (Linux, Puppet, Nagios, Icinga, Grafana, InfluxDB, Elasticsearch etc).
- GPU accelerated Join Algorithms (CUDA, OpenCL). Achieved 3.5x Sort Merge Join speedup.

Monitoring specialist at the Cloud Computing for Science project for RNP (CNC-RNP) (2015)
CNC-RNP is a cloud storage project for the Brazilian network of teaching and research.

- I was responsible for specifying and implementing health check and performance monitoring throughout the infrastructure with Puppet, Nagios, Icinga, InfluxDB and Grafana.

TA at UFMG

- Computer Networks. (2010/S2)
- Introduction to Robotics. (2011/S2)
- Complex Networks. (2008/S2)

IT specialist at IBM. (2009)

- Provided level 1/2 Tivoli monitoring infrastructure support.

¹<http://mtcs.github.io/faster/>

²<http://github.com/mtcs/rnet>

Masters Student at UFMG

(2008 - 2009)

- Masters Degree thesis: Spatial and temporal analysis of character mobility in Massive multi-player On-line Games. Collect, parse and analysis of World of Warcraft and Second Life characters movement data.

Intern at the CAMPS HP project at UFMG

(2006 - 2008)

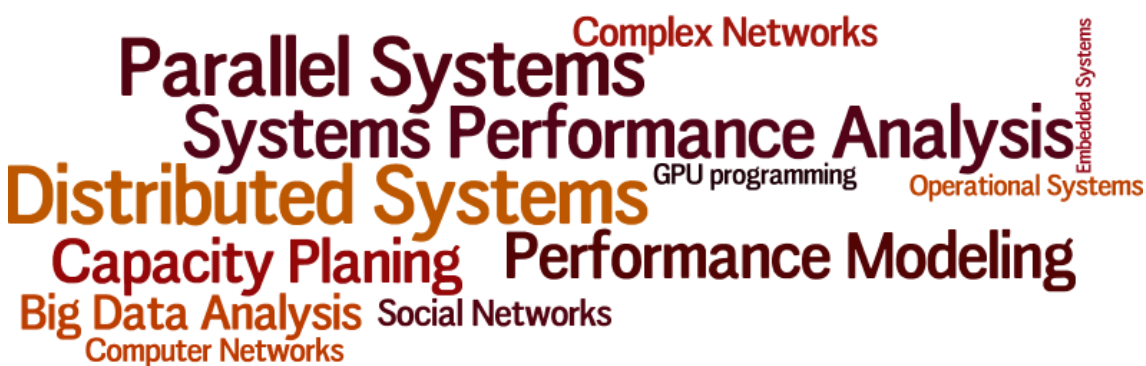
- Analyzing and modeling Xen virtual environment performance project for HP.
- Analysis of HP CapAd capacity planing tool for accuracy.

Intern at the LibertasBR project at UFMG

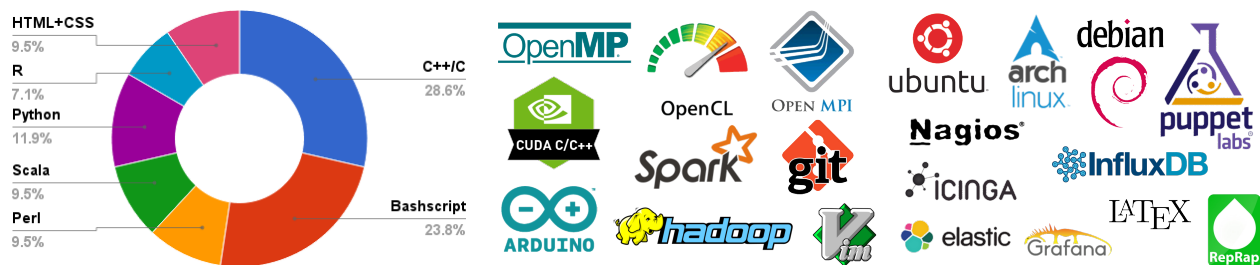
(2004)

- LibertasBR was a Debian-based Linux distribution tailored to Brazilian schools financed by the Brazilian Federal Government.

Interests



Skills and Technologies



Publications

- **Faster: a low overhead framework for massive data analysis.** CCGrid 2016
Matheus C. Santos, Wagner Meira Jr., Dorgival Guedes and Virgílio A. F. Almeida
International Symposium on Cluster, Cloud and Grid Computing .
- **Characterizing Mobility and Contact Networks in Virtual Worlds.** FAVE 2009
Felipe Machado, Matheus C. Santos, Virgílio A. F. Almeida and Dorgival G. Neto
Published in Facets of Virtual Environments .
- **VEPMon: A Tool for Monitoring Virtual Environments Performance** SBRC 2008
(VEPMon: Uma Ferramenta de Monitoração de Desempenho para Ambientes Virtuais.)
Matheus Santos, Fabrício Benevenuto César Fernandes, Virgílio A. F. Almeida and Jussara M. Almeida
Published in Simpósio Brasileiro de Redes de Computadores tool workshop .

- Measuring and Modeling Applications Performance in a Virtul Environment.** SBRC 2008
(Medindo e Modelando o Desempenho de Aplicações em um Ambiente Virtual.)
 Fabrício Benevenuto, César Fernandes, Matheus Santos, Virgílio A. F. Almeida and Jussara M. Almeida
 Published in the Simpósio Brasileiro de Redes de Computadores .
- A Quantitative Analysis of the Xen Virtualization Overhead.** CCC 2007
 Fabrício Benevenuto, César Fernandes, Matheus Santos, Virgílio A. F. Almeida and Jussara M. Almeida
 Published in .
- Performance Models for Virtualized Applications.** ISPA Workshops 2006
 Fabrício Benevenuto, César Fernandes, Matheus Santos, Virgílio A. F. Almeida, Jussara M. Almeida, G. John Janakiraman and Jose Renato Santos