

Sand Luz Corrêa

Curriculum Vitae

Personal data

Name Sand Luz Corrêa.

Name in bibliography citations Correa, Sand; CORREA, SAND.

Birth information Dec-16-1972 – Anápolis, GO – Brasil.

Professional address Federal University of Goiás (UFG)
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Formal education/Degree

- 2006 - 2011** D.Sc. in Informatics.
Pontifical Catholic University of Rio de Janeiro, PUC-Rio, Brasil. Year of degree: 2011.
Thesis' title: Statistical detection of performance anomaly in systems based on middleware.
Advisor: Renato Fontoura de Gusmão Cerqueira.
Grantee of: CNPq– National Council for Scientific and Technological Development, Brasil.
Keywords: autonomic computing, middleware, distributed systems
Major Area: Exact and Earth Sciences / Area: Computer Science / Subarea: Distributed Systems/
Specialty: Autonomic Computing.
- 1995 - 1997** M.Sc. in Computer Science.
University of Campinas, Unicamp , Brasil. Year of degree: 1997.
Dissertation's title: Computational reflection and software fault tolerance in distributed systems.
Advisor: Cecilia Mary Fisher Rubira.
Grantee of: FAPESP – São Paulo Research Foundation.
Keywords: object-oriented programming, computational reflection, software fault tolerance.
Major Area: Exact and Earth Sciences / Area: Computer Science / Subarea: Distributed Systems.
- 1991 - 1994** Bachelor in Computer Science.
Federal University of Goiás, UFG, Brasil. Year of degree: 1994.

Professional experience

1. Federal University of Goiás – UFG

Contract

2010 – Present Type of contract: government employee, functional placement: professor, credit hours: 40, exclusive dedication.

Activities

03/2014 - Present Teaching, Computer Science, degree: undergraduate.
Disciplines taught: Computer Architecture.

03/2014 - Present Teaching, Information Systems, degree: undergraduate.
Disciplines taught: Computer Architecture.

08/2013 – 12/2013 Teaching, Software Engineering, degree: undergraduate.
Disciplines taught: Computer Architecture.

08/2013 - 12/2013 Teaching, Information Systems, degree: undergraduate.
Disciplines taught: Computer Architecture.

03/2013 - 07/2013 Teaching, Information Systems, degree: undergraduate.
Disciplines taught: Computer Architecture, Object-oriented Programming.

10/2012 - 03/2013 Teaching, Software Engineering, degree: undergraduate.
Disciplines taught: Computer Architecture.

02/2012 - 06/2012 Teaching, Computer Science, degree: undergraduate.
Disciplines taught: Distributed Systems, Object-oriented Programming.

08/2011 - 12/2011 Teaching, Information Management, degree: undergraduate.
Disciplines taught: Object-oriented Programming.

02/2011 - 12/2011 Teaching, Information Systems, degree: undergraduate.
Disciplines taught: Object-oriented Programming.

08/2010 - 12/2010 Teaching, Information Systems, degree: undergraduate.
Disciplines taught: Database Systems 1, Object-oriented Programming.

2. Pontifical Catholic University of Rio de Janeiro – PUC-Rio

Contract

2007 - 2010 Type of contract: temporary, functional placement: researcher, credit hours: 20.

Activities

2007 – 2010 Research and Development
Development of a component based system based on CORBA.

3. National Laboratory for Scientific Computing – LNCC

Contract

2005 - 2006 Type of contract: temporary, functional placement: DTI fellow, credit hours: 40.

Activities

2005 -2006 Research and Development
Development of a pervasive health system.

4. Salgado de Oliveira College – UNIVERSO

Contract

08/2000 – 07/2005 Type of contract: formal, functional placement: professor, credit hours: 21.

Activities

02/2003 - 12/2004 Teaching, Information Systems, degree: undergraduate.
Disciplines taught: Database Systems, Programming Language.

5. State University of Goiás – UEG

Contract

02/1998 – 12/1998 Type of contract: temporary, functional placement: professor, credit hours: 20.

Activities

02/2003 - 12/2004 Teaching, Information Systems, degree: undergraduate.
Disciplines taught: Computer Architecture

4. Telecommunications of Goiás – TELEGOIAS

Contract

1997 – 1999 Type of contract: government employee, functional placement: systems analyst, credit hours: 40.

Activities

1997 – 1999 Systems analysis and development.

Scientific journal referee

- 1. 2012 – 2012 IEEE Transactions on Parallel and Distributed Systems (Print).**

Research projects

2013 - Present **Title:** GT-ATER (Data Transport Acceleration by Employing Dynamic Circuit Networks) – phase 2.

Description: in the first phase, the project completed the development of a fully functional prototype. In this prototype, the user is able to define effective or monitoring rules, which allow forwarding traffic through dynamic circuits or just monitor the data flows, respectively. Every user interaction with the ATER prototype can be accomplished through a simple Web interface that allows adding rules, removing rules, and statistics monitoring. As an administrator, a user can also configure and manage the whole ATER service, performing activities such as account creation, approval and verification procedures of other components of the service – the RACES. In addition to the Web interface, ATER service also offers a REST API. In this second phase, the project has two main goals: perform tests with pilot users in the experimental network available in the Brazilian NREN, and evolve the prototype to make it more robust and scalable.

My role: researcher.

Participant Students: undergraduate (3) / M.Sc. (2).

Sponsor: Brazilian National Research and Education Network (NREN) – RNP.

Budget: R\$ 170,800.

2013 - Present **Title:** Nuvem Verde (Green Cloud): A Platform to Support Rational Use of Energy in Cloud Systems.

Description: this project aims to develop a basic software platform for control, monitoring, and management of cloud computing services with emphasis on energy savings. The aim is to explore the features of control, management, and monitoring of the OMF (Control and Management Framework) to make more efficient use of electrical energy consumed by large computer centers. In this context, the project aims to monitor the demand for computing resources involved, not just computers themselves, but also other equipment such as routers and switches. Furthermore, we intend to monitor energy consumption by these and other related equipment, such as lighting system and cooling system. As computer systems are sensitive to temperature and humidity, we also plan to monitor these environmental conditions.

My role: researcher.

Participant Students: undergraduate (3) / M.Sc. (4).

Sponsor: Foundation for Research Support of the State of Goiás – FAPEG.

Budget: R\$ 69,580.

2012 - 2013 **Title:** GT-ATER (Data Transport Acceleration by Employing Dynamic Circuit Networks).

Description: In National Research and Education Networks (NRENs) such as APAN, Internet2, ESnet, GÉANT, CLARA and RNP (in Brazil), is increasing the need to transport large volumes of data reliably and efficiently. On the other hand, it is well known the difficulty of TCP to follow the expansion of networks capacity, especially due to the high

values of the bandwidth-delay product (BDP). One approach to improve the performance of TCP in high-capacity networks is creating dynamic circuits. Dynamic circuits can be used as shortcuts within the network, where the BDP can be reduced by removing part of the queuing delays. This project aims to develop and deploy a service to identify packet flows carrying large amounts of data and create dynamic circuits to send them. The focus is to develop a new service for RNP users who need to transfer large volumes of data.

My role: researcher.

Participant Students: undergraduate (4) / M.Sc. (1) / D.Sc. (1).

Sponsor: Brazilian National Research and Education Network (NREN) – RNP.

Budget: R\$ 154,996.

2011 - Present

Title: FIBRE - Future Internet testbeds experimentation Between Brazil and Europe.

Description: The main goal of the FIBRE project is the design, implementation and validation of a shared Future Internet research facility, supporting the joint experimentation of European and Brazilian researchers. In order to achieve this goal the project will carry out four main activities: 1) The development and operation of a new experimental facility in Brazil, including the setup of equipment to support experimentation with various technologies (fixed layer 2 and layer 3, wireless, optical) as well as the design and implementation of a control framework to automate the use and operation of the testbed. 2) The development and operation of a Future Internet facility in Europe based on enhancements and the federation of two existing infrastructures: OFELIA and OneLab. Two OFELIA islands (i2CAT and University of Bristol (UNIVBRIS)) and the UTH's NITOS testbed will be enhanced by i) adding more physical resources (servers, OpenFlow-enabled switches and access points) to be able to cope with a bigger number of users and different use cases, ii) improving its respective control frameworks (based on the OFELIA control framework and OMF) and iii) adding more manpower to operate the facilities. 3) The federation of the Brazilian and European experimental facilities, both at the physical connectivity and control framework level, to support the provisioning of slices using resources from both testbeds. 4) The design and implementation of pilot applications of public utility that showcase the power of a shared Europe-Brazil Future Internet experimental facility.

My role: researcher.

Participant Students: undergraduate (9) / M.Sc. (13) / D.Sc. (5).

Sponsor: National Council for Scientific and Technological Development – CNPq.

Whole budget: R\$ 2,300,000. **Local budget for UFG:** R\$ 248,065.

2010 - 2013

Title: CGTravel – Grid Computing with High Speed Transport.

Description: the project aims to develop a framework to allow integration between distributed processing systems, particularly computational grids, and a prototype service of high speed, available in the RNP.

My role: researcher.

Participant Students: undergraduate (2) / M.Sc. (1).

Sponsor: Foundation for Research Support of the State of Goiás – FAPEG.

Budget: R\$ 41,800.

Development projects

2007 – 2010

Title: OpenBus – Enterprise Integration Application Middleware.

Description: OpenBus is a middleware for integrating corporate system through Service-oriented architecture. These systems can be developed in different programming languages and platforms (Linux, Solaris, Windows, MacOSX, etc).

My role: developer.

Awards and Titles

2013

Second best paper by the work entitled “*An Approach Based on CPU and RAM Consumption for Energy Efficiency in Data Centers for Cloud Computing*”, in the XIV Symposium in Computer Systems (WSCAD-SSC).

2006 – 2009

Scholarship for D.Sc. candidate, National Council for Scientific and Technological

Bibliographical production

Articles in scientific journals

1. ABELEM, ANTONIO; STANTON, MICHAEL; MACHADO, IARA; SALVADOR, MARCOS; MAGALHAES, LUIZ; FERNANDES, NATALIA; **CORREA, Sand**; Cardoso, Kleber; MARCONDES, CESAR; MARTINS, JOBERTO; MONTIERO, JOES; CARVALHO, TEREZA; REZENDE, JOSE. "*FIT@BR - a Future Internet Testbed in Brazil*". Proceedings of the Asia-Pacific Advanced Network, v. 36, p. 1 - 8, 2013. DOI: 10.7125/APAN.36.1.

Book chapter

1. SILVESTRE, B. O.; CARDOSO, K. V.; **CORREA, Sand**. "*Control and Monitoring of Experiments for the Future Internet Employing OMF*". In: textbook of short courses of the XXX Brazilian Symposium on Telecommunications (SBrT), 2012, p. 1-34. (text in Portuguese)

2. **CORREA, Sand** ; CERQUEIRA, R. F. G. . "*Autonomic Computing: Concepts, Infrastructures and Solutions ins Distributed Systems*". In: textbook of short courses of the 27th Brazilian Symposium on Computer Networks and Distributed Systems (SBRC), 2009, p. 152-199.(text in Portuguese)

Complete works published in proceedings of conferences

1. de MELLO, M. O. C.; ALCÂNTARA, C. S.; da SILVA, B. S.; CRUZ, M. A.; **CORREA, Sand**; Cardoso, K. V. "*Automatic Creation of Dynamic Circuits in Hybrid Networks using Traffic Filtering Rules*". In: 32nd Brazilian Symposium on Computer Networks and Distributed Systems (SBRC), 2014, Florianópolis. (text in Portuguese)

2. PINNO, O. J. A; **CORREA, Sand**; SACRAMENTO, V. J.; Cardoso, K. V. "*A Partial Correlation Approach for filtering metrics in Self-Monitoring Systems*". In: IV Workshop on Autonomic Distributed Systems, 2014, Florianópolis.(text in Portuguese)

3. CRUZ, M. A.; SILVA, L. C. E.; **CORREA, Sand**; Cardoso, K. V. "*Accurate Online Detection of Bidimensional Hierarchical Heavy Hitters in Software-Defined Networks*". In: IEEE 5th Latin-American Conference on Communications (LATINCOM), 2013, Santiago.

4. BARBOSA, C. S.; BORGES, V. C. M.; **CORREA, Sand**; CARDOSO, K. V. "*An Evolution-Inspired Algorithm for Efficient Dynamic Spectrum Selection*". In: 27th International Conference on Information Networking (ICOIN), 2013, Bangkok.

5. CRUZ, M. A.; **CORREA, Sand**; Cardoso, K. V. "*Detection of Bidimensional Hierarchical Heavy Hitters in OpenFlow Networks*". In: IV Workshop of Experimental Research on Future Internet (WPEIF), 2013, Brasília.

6. CASTRO, P. H. P.; **CORREA, Sand**; Cardoso, K. V. "*An Approach Based on CPU and RAM Consumption for Energy Efficiency in Data Centers for Cloud Computing*". In: XIV Symposium in Computer Systems (WSCAD-SSC), 2013, Porto de Galinhas. (text in Portuguese)

7. BARBOSA, C. S.; **CORREA, Sand**; SALVINI, R.; CARDOSO, K. V. "*An Evolutionary Strategy for Dynamic Spectrum Selection*". In: II Workshop on Broadband Access Networks (WRA), 2012, Ouro Preto. (text in Portuguese)

8. **CORREA, Sand**; CERQUEIRA, R. F. G.. "*Statistical Approaches to Predicting and Diagnosing Performance Problems in Component-Based Distributed Systems: An Experimental Evaluation*". In: Self-Adaptive and Self-Organizing Systems (SASO), IEEE International Conference on, 2010, Hungria.

9. FONSECA, E. ; **CORREA, Sand**; CERQUEIRA, R. F. G.. "*Experimenting Middleware-Level Monitoring Facilities to Observe Component-based Applications*". In: II Brazilian Symposium in Components, Architectures and Software Reutilization (SBCARS), 2008, Porto Alegre. (text in Portuguese)

Academic advisory

Scientific initiation (On going)

1. **Ana Paula de Sousa Oliveira**. Study and Deployment of a Cloud Computing Infrastructure. Started at: 2013.

Scientific initiation (Concluded)

1. **Lafaiet Castro e Silva**. Deployment of a Framework for Controlling Software-Defined Networks. Finished at 2013.

Course completion works (Concluded)

1. **Guilherme Nogueira de Souza**. A service for active measurement using software components. 2013.

Boards

Participation in course completion works examination boards (all in Portuguese)

Master's dissertation

1. CARDOSO, K. V.; **CORREA, Sand**; SANTOS, A. L.; CAMILO JUNIOR, C. G. Participation in board of Camila Soares Barbosa. **Algorithms Based on Evolutionary Strategies for Dynamic Spectrum Selection in Cognitive Radios**, 2013. Computer Science. Federal University of Goiás.

Undergraduate course's conclusion work

1. CARDOSO, K. V.; **CORREA, Sand**; SILVESTRE, B. O. Participation in board of Vinícius Bulhões da Silva Lima. **Acceleration of data transport through a solution based on intermediate equipments**, 2013. Course: Computer Science. Federal University of Goiás.

2. CARDOSO, K. V.; **CORREA, Sand**. Participation in board of Micael Oliveira Massula Carvalho de Mello. **Study on remote experimentation infrastructure with support for mobile equipments**, 2013. Course: Information Systems. Federal University of Goiás.

3. CARDOSO, K. V.; **CORREA, Sand**. Participation in board of Gabriel Andrade de Almeida. **Study on optimization techniques for choosing channels in networks with opportunistic spectrum access**, 2013. Course: Computer Science. Federal University of Goiás.

4. CARDOSO, K. V.; **CORREA, Sand**. Participation in board of Pedro Henrique Pires de Castro. **Scheduling of tests in remote experimentation environments for wireless networks**, 2011. Course: Computer Science. Federal University of Goiás.