CURRICULUM VITÆ

Alysson Neves Bessani

Professor Associado

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Contents

1 Personal Information

Name: Alysson Neves Bessani

Date of Birth: April 4, 1978 (38 years old)
Nationality: Brazilian

Affiliation: Faculdade de Ciências da Universidade de Lisboa, Departamento de Informática (DI-FCUL). Researcher at the Large-Scale Informatics Systems Laboratory (LASIGE).

Rank: Associated Professor.

Research interests: storage, dependability, distributed systems, distributed algorithms, security, middleware.

1.1 Education

September 2006 – PhD in Electrical Engineering, Universidade Federal de Santa Catarina - Brazil. Thesis: "Byzantine Fault-tolerant Decoupled Coordination". Advisors: Prof. Joni da Silva Fraga and Prof. Lau Cheuk Lung.

September 2002 – MSc in Electrical Engineering, Universidade Federal de Santa Catarina - Brazil. Thesis: "The UMIOP Standard as a basis for Reliable Group Communication in Large-scale Distributed Systems". Advisors: Prof. Joni da Silva Fraga and Prof. Lau Cheuk Lung.

December 2001 – BSc in Computer Science. Universidade Estadual de Maringá - Brazil.

1.2 Employment

From November 2015 and on – Associate Professor at the Departamento de Informática, Faculdade de Ciências, Universidade de Lisboa, Portugal.

From August 2012 to October 2015 – Assistant Professor at the Departamento de Informática, Faculdade de Ciências, Universidade de Lisboa, Portugal.

May-July 2014 – Visiting Researcher at the Systems and Network Group of the Microsoft Research Cambridge (Cambridge, UK). This position was supported by Microsoft Research.

From 2007 to 2012 – Invited Assistant Professor at the Departamento de Informática, Faculdade de Ciências, Universidade de Lisboa, Portugal.

January-May 2010 – Visiting Assistant Professor at Electrical and Computer Engineering at Carnegie Mellon University. Pittsburg, USA, supported by a scholarship by FCT through the CMU-Portugal project.

From 2006 to 2007 – Researcher (post-doc position) at the Large-Scale Informatics Systems Laboratory (Research unit of the Departamento de Informática, Faculdade de Ciências, Universidade de Lisboa) working on critical infrastructures dependability.

From 2005 to 2006 – Visiting Professor at the Centro Universitário de Maringá, Brazil. Teaching some courses on the MSc program on Web Systems Development and Java Programming.

From 2001 to 2006 – Researcher (MsC and PhD student position) at the Universidade Federal de Santa Catarina, Brazil, supported by scholarships funded by CNPq (Brazilian Council for Scientific and Technological Development).

From 2000 to 2005 – Senior Java Programmer and co-founder of "Rendera Sistemas Para a Web S/A", a web software development company.

1.3 Faculty Evaluation at FCUL (*Avaliaç ão Docente*)

In the recent FCUL faculty evaluation for the 2008-2011 period I was awarded classification of 99,277 out of 100 (*Menç ão Excelente*).

2   Research

Summary of the publications:

TYPE	QUANTITY
Articles in Refereed Journals	16
Publications in International Refereed Conferences	30
Publications in International Refereed Workshops	18
Book Chapters	2
Articles in Refereed National Journals	3
Publications in Refereed National Conferences/Workshops	44
National Book Chapters	2
Project Deliverables	6
Technical Reports	15
Short Papers and Extended Abstracts	13

In the journal and conference papers listed bellow, the information about the Core classification of the publication was obtained from `http://www.core.edu.au/images/journals/08sortalpha-ERA2010_journal_title_list.pdf` and `http://core.edu.au/index.php/conference-portal`, respectively. We report the core classification on the time the paper was published. For journal publications, we present the impact factor of the journal when such information is available in its website.

2.1   Articles in International Journals

1. Eduardo Adilio Pelinson Alchieri, Alysson Bessani, Fabíola Greve, Joni da Silva Fraga. Knowledge Connectivity Requirements for Solving Byzantine Consensus with Unknown Participants. *IEEE Transactions on Dependable and Secure Computing*. IEEE Computer Society. Accepted for publication in March 2016. [Core A, Impact Factor 1.351].

2. Fernando Alves, Vinicius Cogo, Sebastian Wandelt, Ulf Leser, Alysson Neves Bessani. On-Demand Indexing for Referential Compression of DNA Sequences. *PLOS ONE*. Vol 10, Num 7. June 2015. [Impact Factor 3.534].

3. Alysson Bessani, Leucio A. Cutillo, Gianluca Ramunno, Norbert Schirmer, Paolo Smiraglia. The TClouds Platform: From the Concept to the Implementation of Benchmark Scenarios. *ACM SIGOPS Operating Systems Review*, Vol. 48 , Num. 2, pp. 13-22. ACM Press. July 2014. [Not listed in core, No impact factor].

4. Miguel Garcia, Alysson Bessani, Ilir Gashi, Nuno Neves, Rafael Obelheiro. Analysis of operating system diversity for intrusion tolerance. *Software: Practice and Experience*. Vol. 40, Num 6. Wiley. June 2014. [Core A, Impact Factor 1.148].

5. Paulo Jorge Esteves Veríssimo, Alysson Bessani. E-biobanking: What Have You Done to My Cell Samples? *IEEE Security & Privacy*. Vol. 11, Num. 6: pp. 62-65. IEEE Computer Society. November/December 2013. [Core B, Impact Factor 0.721].

6. Alysson Bessani, Miguel Correia, Bruno Quaresma, Fernando André, Paulo Sousa. DepSky: Dependable and Secure Storage in a Cloud-of-Clouds. *ACM Transactions on Storage*. Vol. 9, Num. 4. ACM Press. November 2013 (a preliminary version appeared on EuroSys'11). [Core B, Impact Factor 0.586].

7. Pedro Costa, Marcelo Pasin, Alysson Bessani, Miguel Correia. On the Performance of Byzantine Fault-Tolerant MapReduce. *IEEE Transactions on Dependable and Secure Computing*. Vol. 10, Num. 5, pp. 301-313. IEEE Computer Society. September/October 2013 (a preliminary version appeared on CloudCom 2011). [Core A, Impact Factor 1.137].

8. Giuliana Veronese, Miguel Correia, Alysson Bessani, Lau Lung, Paulo Verissimo. Efficient Byzantine Fault Tolerance. *IEEE Transactions on Computers*. Vol. 62, Num. 1, pp. 16-30. IEEE Computer Society. January 2013. [Core A*, Impact Factor 1.473].

9. Alysson Bessani, Rüdiger Kapitza, Dana Petcu, Paolo Romano, Spyridon V. Gogouvitis, Dimosthenis Kyriazis, Roberto G. Cascella. A Look to the Old-world Sky: EU-funded Dependability Cloud Computing Research. *ACM SIGOPS Operating Systems Review*, Vol. 46 , Num. 2, pp. 43-56. ACM Press. July 2012. [Not listed in core, No impact factor].

10. Luís Teixeira d' Aguiar Norton Brandão, Alysson Neves Bessani. On the reliability and availability of replicated and rejuvenating systems under stealth attacks and intrusions. *Journal of Brazilian Computer Society*. Vol. 18, Num. 1, pp. 61-80. Springer. March 2012 (a preliminary version appeared on LADC 2011). [Core C, No impact factor].

11. Eduardo Adilio Pelinson Alchieri, Alysson Neves Bessani, Joni da Silva Fraga. A Dependable Infrastructure for Cooperative Web Services Coordination. *International Journal of Web Services Research*. Vol. 7, Num. 2, pp. 43-64. Idea Group Publishing. 2010 (a preliminary version appeared on ICWS 2008). [Core C, Impact Factor 0.469].

12. Paulo Sousa, Alysson Neves Bessani, Miguel Correia, Nuno Ferreira Neves, Paulo Verissimo. Highly Available Intrusion-Tolerant Services with Proactive-Reactive Recovery. *IEEE Transactions on Parallel and Distributed Systems*. Vol. 21, Num. 4, pp. 452-465. IEEE Computer Society. April 2010 (a preliminary version appeared on PRDC 2007). [Core A*, Impact Factor 2.173].

13. Alysson Neves Bessani, Miguel Correia, Joni da Silva Fraga, Lau Cheuk Lung. An Efficient Byzantine-Resilient Tuple Space. *IEEE Transactions on Computers*. Vol. 58, Num. 8, pp. 1080-1094. IEEE Computer Society. August 2009 (a preliminary version appeared on NCA 2007). [Core A*, Impact Factor 1.473].

14. Alysson Neves Bessani, Miguel Correia, Joni da Silva Fraga, Lau Cheuk Lung. Sharing Memory between Byzantine Processes using Policy-Enforced Tuple Spaces. *IEEE Transactions on Parallel and Distributed Systems*, Vol. 20, Num. 3, pp 419-432. IEEE Computer Society. March 2009 (a preliminary version appeared on ICDCS 2006). [Core A*, Impact Factor 2.173].

15. Alysson Neves Bessani, Paulo Sousa, Miguel Correia, Nuno Ferreira Neves, Paulo Verissimo. The Crutial Way of Critical Infrastructure Protection. *IEEE Security & Privacy*, Vol. 6, Num. 6. IEEE Computer Society. November/December 2008. [Core B, Impact Factor 0.721].

16. Miguel Correia, Alysson Neves Bessani, Paulo Verissimo. On Byzantine Generals with Alternative Plans. *Journal of Parallel and Distributed Computing*, Vol. 68, Num. 9, pp 1291-1296. Elsevier. September 2008. [Core A*, Impact Factor 1.179].

2.2 Publications in International Refereed Conferences

1. João Sousa, Alysson Bessani. Separating the WHEAT from the Chaff: An Empirical Design for Geo-Replicated State Machines. *SRDS'15: The 34th International Symposium on Reliable Distributed Systems*. Montreal, Quebec, Canada. September 2015. [Core A].

2. Tobias Distler, Christopher Bahn, Alysson Bessani, Frank Fischer, Flavio Junqueira. Extensible Distributed Coordination. *EuroSys'15: The 10th ACM SIGOPS/EuroSys European Systems Conference*. April 2015. [Core A].

3. Diego Kreutz, Alysson Bessani, Eduardo Feitosa, Hugo Cunha. Towards Secure and Dependable Authentication and Authorization Infrastructures. *PRDC'14: The 20th IEEE Pacific Rim International Symposium on Dependable Computing*. Singapore. December 2014. [Core B].

4. Alysson Bessani, Ricardo Mendes, Tiago Oliveira, Marcelo Pasin, Miguel Correia, Nuno Neves, Paulo Verissimo. SCFS: A Shared Cloud-backed File System. *USENIX ATC'14: USENIX Annual Technical Conference*. Philadelphia, PA, USA. June 2014. [Core A].

5. Alysson Bessani, João Sousa, Eduardo Alchieri. State Machine Replication for the Masses with BFT-SMaRt. *DSN'14: IEEE/IFIP Conference on Dependable Systems and Networks*. Atlanta, GA, USA. June 2014. [Core A*].

6. Alysson Bessani, Marcel Santos, João Felix, Nuno Neves, Miguel Correia. On the Efficiency of Durable State Machine Replication. *USENIX ATC'13: USENIX Annual Technical Conference*. San Jose, CA, USA. June 2013. [Core A].

7. Vinicius Cogo, André Nogueira, João Sousa, Marcelo Pasin, Hans P. Reiser, Alysson Bessani. FITCH: Supporting Adaptive Replicated Services in the Cloud. *DAIS'13: 13th International IFIP Conference on Distributed Applications and Interoperable Systems*. Florence, Italy. June 2013. [Core B].

8. João Sousa, Alysson Bessani. From Byzantine Consensus to BFT State Machine Replication: A Latency-optimal transformation. *EDCC'12: The 9th European Conference on Dependable Computing*. Sibiu, Romania. May 2012. [Not listed in core].

9. Pedro Costa, Marcelo Pasin, Alysson Bessani, Miguel Correia. Byzantine Fault-Tolerant MapReduce: Faults are not just Crashes. *CloudCom'11: The 3rd IEEE International Conference on Cloud Computing and Science*. Athens, Greece. December 2011. [Core C].

10. Miguel Garcia, Alysson Bessani, Ilir Gashi, Nuno Neves, Rafael Obelheiro. OS Diversity for Intrusion Tolerance: Myth or Reality? *DSN'11: The IEEE/IFIP International Conference on Dependable Systems and Networks*. Hong Kong, China. June 2011. [Core A*].

11. Alysson Bessani, Miguel Correia, Bruno Quaresma, Fernando André, Paulo Sousa. DepSky: Dependable and Secure Storage in a Cloud-of-Clouds. *EuroSys'11: The 6th ACM SIGOPS/EuroSys European Systems Conference*. Salzburg, Austria. April 2011. [Core A].

12. Luis T. A. N. Brandão, Alysson Bessani. On the Reliability and Availability of Systems Tolerant to Stealth Intrusion. *LADC'11: The 5th Latin-American Symposium on Dependable Computing*. Sç ão José dos Campos, Brazil. April 2011. [Not listed in core].

13. Giuliana Veronese, Miguel Correia, Alysson Bessani, Lau Lung. EBAWA: Efficient Byzantine Agreement for Wide-Area Networks. *HASE'10: The 12th IEEE International High Assurance Systems Engineering Symposium*. San Jose, CA, USA. November 2010. [Core B].

14. Eduardo Alchieri, Alysson Neves Bessani, Fernando Carlos Pereira, Joni da Silva Fraga. Proactive Byzantine Quorum Systems. *DOA'09: XI International Symposium on Distributed Objects and Applications*. Vilamoura, Portugal. November 2009. [Not listed in core].

15. Giuliana Santos Veronese, Miguel Correia, Alysson Neves Bessani, Lau Cheuk Lung. Spin One's Wheels? Byzantine Fault Tolerance with a Spinning Primary. *SRDS'09: The 30th IEEE Symposium on Reliable Distributed Systems*. Niagara Falls, USA, September 2009. [Core A].

16. Paulo Sousa, Alysson Neves Bessani, Wagner Saback Dantas, Fabio Souto, Miguel Correia, Nuno F. Neves. Intrusion-Tolerant Self-Healing Devices for Critical Infrastructure Protection. *DSN'09: IEEE/IFIP International Conference on Dependable Systems and Networks*. Estoril, Portugal, June 2009. [Core A*].

17. Paulo Veríssimo, Alysson Bessani, Miguel Correia, Nuno Ferreira Neves, Paulo Sousa. Designing Modular and Redundant Cyber Architectures for Process Control: Lessons Learned. *HICSS-42: The 42nd Hawaii International Conference for the Systems Sciences*. Waikoloa, Hawaii, January 2009. [Core A].

18. Eduardo Adilio Pelinson Alchieri, Alysson Neves Bessani, Joni da Silva Fraga, Fabíola Greve. Byzantine Consensus with Unknown Participants. *OPODIS'08: The 12th International Conference On Principles Of DIstributed Systems*. Luxor, Egypt. December 2008. [Core B].

19. Eduardo Adilio Pelinson Alchieri, Alysson Neves Bessani, Joni da Silva Fraga. A Dependable Infrastructure for Cooperative Web Services Coordination. *ICWS'08: The 6th IEEE International Conference on Web Services*. Beijing, China. September 2008. [Core A].

20. Alysson Neves Bessani, Eduardo Adilio Pelinson Alchieri, Miguel Correia, Joni da Silva Fraga. DepSpace: A Byzantine Fault-Tolerant Coordination Service. *EuroSys'08: The 3rd ACM SIGOPS/ EuroSys European Systems Conference*. Glasgow, Scotland. April 2008. [Core A].

21. Paulo Sousa, Alysson Neves Bessani, Miguel Correia, Nuno Ferreira Neves, Paulo Verissimo. Resilient Intrusion Tolerance Through Proactive and Reactive Recovery. *PRDC'07: The 13th IEEE Pacific Rim International Symposium on Dependable Computing*. Melbourne, Australia. December 2007. [Core B].

22. Wagner Saback Dantas, Alysson Neves Bessani, Joni da Silva Fraga, Miguel Correia. Evaluating Byzantine Quorum Systems. *SRDS'07: The 26th IEEE International Symposium on Reliable Distributed Systems*. Beijing, China. October 2007. [Core A].

23. Alysson Neves Bessani, Miguel Correia, Joni da Silva Fraga, Lau Cheuk Lung. Decoupled Quorum-based Byzantine-Resilient Coordination in Open Distributed Systems. *NCA'07: The 6th IEEE International Symposium on Network Computing and Applications*. Cambridge - MA, EUA. July 2007. [Core A].

24. Alysson Neves Bessani, Miguel Correia, Joni da Silva Fraga, Lau Cheuk Lung. Sharing Memory between Byzantine Processes using Policy-Enforced Tuple Spaces. *ICDCS'06: 26th IEEE International Conference on Distributed Computing Systems*. Lisbon, Portugal. July 2006. [Core A].

25. Alysson Neves Bessani, Joni da Silva Fraga, Lau Cheuk Lung. BTS: A Byzantine Fault-Tolerant Tuple Space. *SAC'06: The 21st ACM Symposium on Applied Computing*. Dijon, France. April 2006. [Core B].

26. Alysson Neves Bessani, Joni da Silva Fraga, Lau Cheuk Lung. Extending the UMIOP Specification for Reliable Multicast in CORBA. *DOA'05: VII International Symposium on Distributed Objects and Applications*. LNCS vol. 3760. Larnaca, Cyprus. October 2005. [Not listed in core].

27. Daniel Borush, Lau Cheuk Lung, Alysson Neves Bessani, Joni da Silva Fraga. Integrating the ROMIOP and ETF Specifications for Atomic Multicast in CORBA. *DOA'05: VII International Symposium on Distributed Objects and Applications*. LNCS vol. 3760. Larnaca, Cyprus. October 2005. [Not listed in core].

28. Christiane Bortoleto, Lau Cheuk Lung, Frank Siqueira, Alysson Neves Bessani, Joni da Silva Fraga. A Semi-reliable Multicast Protocol for Distributed Multimedia Applications in Large Scale Networks. *MMNS'05: The 8th International Conference on Management of Multimedia Networks and Services*. LNCS vol. 3754. pp. 109-120. Barcelona, Spain. September 2005. [Not listed in core].

29. Alysson Neves Bessani, Joni da Silva Fraga, Lau Cheuk Lung, Eduardo Adilio Pelinson Alchieri. Active Replication in CORBA: Standards, Protocols and Implementation Framework. *DOA'04: VI International Symposium on Distributed Objects and Applications*. LNCS vol. 3291. Larnaca, Cyprus. October 2004. [Not listed in core].

30. Alysson Neves Bessani, Lau Cheuk Lung, Joni da Silva Fraga e Alcides Calsavara. Integrating the Unreliable Multicast Inter-ORB Protocol in MJaco. *DAIS'03: The 4th IFIP WG 6.1 International Conference on Distributed Applications*. LNCS 2893. Paris, France. 2003. [Core B].

2.3 Publications in International Refereed Workshops

1. Vinicius Vielmo Cogo, Alysson Bessani, Francisco M. Couto, Paulo Veríssimo. A High-Throughput Method to Detect Privacy-Sensitive Human Genomic Data. *WPES'15: 14th Workshop on Privacy in the Electronic Society (together with ACM CCS'15)*. Denver, CO, US. Oct. 2015.

2. A. Bessani, J. Brandt, M. Bux, V. Cogo, L. Dimitrova, J. Dowling, A. Gholami, K. Hakimzadeh, M. Hummel, M. Ismail, E. Laure, U. Leser, J-E. Litton, R. Martinez, J. Reichel, S. Niazi, K. Zimmermann. BiobankCloud: a Platform for the Secure Storage, Sharing, and Processing of Large Biomedical Data Sets. *DMAH'15: 1st Int. Workshop on Data Management and Analytics for Medicine and Healthcare (together with VLDB'15)*. Hawaii, US. Sep. 2015.

3. Alysson Bessani, Ricardo Mendes, Tiago Oliveira. On the Consistency of Heterogeneous Composite Objects. *PaPoC'15: 2nd Workshop on Principles and Practice of Consistency for Distributed Data (together with EuroSys'15)*. Bordeux, France, Apr. 2015.

4. Fábio Botelho, Alysson Bessani, Fernando Ramos, Paulo Ferreira. On the Design of Practical Fault-Tolerant SDN Controllers. *EWSDN'14: 3rd European Workshop on Software Defined Networks*. Budapest, Hungary. September 2014.

5. Tiago Oliveira, Ricardo Mendes, Alysson Bessani. Sharing Files Using Cloud Storage Services. *DIHC'14: 2nd Workshop on Dependability and Interoperability in Heterogeneous Clouds (together with Euro-Par'14)*. Porto, Portugal. August 2014.

6. Fábio Botelho, Fernando Ramos, Diego Kreutz, Alysson Bessani. On the feasibility of a consistent and fault-tolerant data store for SDNs. *EWSDN'13: 2nd European Workshop on Software Defined Networks*. Berlin, Germany. October 2013.

7. Alysson Bessani, Leucio A. Cutillo, Gianluca Ramunno, Norbert Schirmer, Paolo Smiraglia. The TClouds Platform: Concept, Architecture and Instantiations. *DISCCO'13: 2nd International Workshop on Dependability Issues in Cloud Computing (together with IEEE SRDS'13)*. Braga, Portugal. September 2013.

8. Miguel Garcia, Nuno Neves, Alysson Bessani. An Intrusion-Tolerant Firewall Design for Protecting SIEM Systems. *WSR'13: Workshop on Systems Resilience (together with IEEE/IFIP DSN'13)*. Budapest, Hungary. June 2013.

9. Miguel Correia, Pedro Costa, Marcelo Pasin, Alysson Bessani, Fernando Ramos, Paulo Veríssimo. On the Feasibility of Byzantine Fault-Tolerant MapReduce in Clouds-of-Clouds. *DISCCO'12: 1st International Workshop on Dependability Issues in Cloud Computing (together with IEEE SRDS'12)*. Irvine, CA, USA. October 2012.

10. Paulo Verissimo, Alysson Bessani, Marcelo Pasin. The TClouds Architecture: Open and Resilient Cloud-of-Clouds Computing. *DCDV'12: 2nd International Workshop on Dependability of Clouds, Data Centers and Virtual Computing Environments (together with IEEE/IFIP DSN'12)*. Boston, USA. June 2012.

11. Bernhard Kauer, Paulo Verissimo, Alysson Bessani. Recursive Virtual Machines for Advanced Security Mechanisms. *DCDV'11: 1st International Workshop on Dependability of Clouds, Data Centers and Virtual Computing Environments (together with IEEE/IFIP DSN'11)*. Hong Kong, China. June 2011.

12. Alysson Bessani. From Byzantine Fault Tolerance to Intrusion Tolerance (a Position Paper). *WRAITS'11: 5th Workshop on Recent Advances in Intrusion-Tolerant Systems (together with IEEE/IFIP DSN'11)*. Hong Kong, China. June 2011.

13. Alysson Bessani, Miguel Correia, Paulo Sousa. Active Quorum Systems. *HotDep'10: Workshop on Hot Topics in System Dependability (together with USENIX OSDI'10)*. Vancouver, Canada. October 2010.

14. Giuliana Santos Veronese, Miguel Correia, Alysson Neves Bessani, Lau Cheuk Lung. Highly-Resilient Services for Critical Infrastructures. *ESCS'09: The Workshop on Embedded Systems and Communications Security (together with IEEE SRDS'09)*. Niagara Falls, USA, September 2009.

15. Wagner Saback Dantas, Alysson Neves Bessani, Miguel Correia. Not Quickly, Just in Time: Improving the Timeliness and Reliability of Control Traffic in Utility Networks. *HotDep'09: Fifth Workshop on Hot Topics in Systems Dependability (together with IEEE/IFIP DSN'09)*. Estoril, Portugal, June 2009.

16. Alysson Neves Bessani, Alessandro Daidone, Ilir Gashi, Rafael R. Obelheiro, Paulo Sousa, Vladimir Stankovic. Enhancing Fault/Intrusion Tolerance through Design and Configuration Diversity. *WRAITS'09:*

The 3rd Workshop on Recent Advances on Intrusion-Tolerant Systems (together with IEEE/IFIP DSN'09). Estoril, Portugal, June 2009.

17. Paulo Sousa, Alysson Neves Bessani, Rafael R. Obelheiro. The FOREVER Service for Fault/Intrusion Removal. *WRAITS'08: The 2nd Workshop on Recent Advances on Intrusion-Tolerant Systems (together with ACM EuroSys'08).* Glasgow, UK, April 2008.

18. Alysson Neves Bessani, Eduardo Adilio Pelinson Alchieri, Joni da Silva Fraga, Lau Cheuk Lung. Design and Implementation of an Intrusion-Tolerant Tuple Space. *WRAITS'07: The 1st Workshop on Recent Advances on Intrusion Tolerant Systems (together with ACM EuroSys'07).* Lisbon, Portugal. March 2007.

2.4   Keynotes, Invited Talks and Tutorials

1. Dependable and Secure Cloud-of-Clouds Storage with Applications to Bioinformatics Invited Talk at *the Interdisciplinary Centre for Security, Reliability and Trust (SnT)* research seminar series, at the *University of Luxembourg*. Luxembourg. January 2016.

2. Secure replication and Byzantine fault-tolerance. Invited Talk at the *Summer School on Secure and Trustworthy Computing*, at the *Bucharest Polytechnic Institute*. `http://summerschool.trust.cased.de`. Bucharest, Romania. September 2015.

3. Practical State Machine Replication and Beyond. Invited Talk at the *Computer Science Department*, at the *City University of London*. London, UK. June 2015.

4. Consistency and Reliability in Cloud-backed Storage Systems. Invited Talk at the *Computer Laboratory Systems Research Group Seminars*, at the *University of Cambridge*. Cambridge, UK. July 2014.

5. A Fault- and Intrusion-Tolerant Architecture for the Portuguese Power Distribution SCADA. Invited Talk at the *65th IFIP 10.4 (Working group on Dependability and Fault Tolerance) meeting*. Atlanta, USA. June 2014.

6. Consistency and Reliability in Cloud-backed Storage Systems. Invited Talk at the *Microsoft Research Cambridge*. Cambridge, UK. June 2014.

7. On the role of state machine replication in cloud infrastructures. Keynote speech at the *2nd International Workshop on Dependability Issues in Cloud Computing (DISCCO'13 - together with IEEE SRDS'13)*. Braga, Portugal. September 2013.

8. Cloud-of-clouds Storage: from a Register to a File System. Invited Talk at the *Informatics Department, University of Neuchatel*. Neuchatel, Switzerland. March 2013.

9. Abstractions for Trusted Cloud Computing: The TClouds Approach. Invited Talk at *the eChallenges 2012 workshop on Storage Clouds for the Future Internet*. October 2012.

10. Porque fazer (ou não fazer) doutoramento em Engenharia Informática. Invited Talk at *Encontro Nacional de Estudantes de Informática (ENEI'12)*. Lisboa, Portugal. April 2012.

11. Replicaç ão na Cloud (of Clouds). `http://sbrc2012.dcc.ufmg.br/sess\~oes-t\` `'ecnicas--3#st4`. Invited Talk at *the XIII Workshop Brasileiro de Testes e Tolerância a Faltas (WTF 2012)*. Ouro Preto - MG - Brazil. April 2012.

12. (BFT) State Machine Replication: Hype and Virtue... and even some Practice. `http://eurosys2012.` `unibe.ch/program/tutorials#T1`. Tutorial presented at *ACM SIGOPS EuroSys'12*. Bern, Switzerland. April 2012.

13. The TClouds Integrated Project - Privacy and Resilience for Internet-scale Critical Infrastructures. Invited talk at *2nd SPRERS Workshop on Software as a Service (2nd WoSS)*. June 2011.

14. Desafios para a prática da pesquisa em Ciência da Computaç ão. Aula Inaugural da Mestrado em Ciência da Computaç ão do Departamento de Informática da Universidade Estadual de Maringá. Maringá-PR, Brazil. April 2011.

15. Building Reliable and Secure Storage from Unreliable Components. *ECE Back to basics Colloquium*. Faculdade de Engenharia da Universidade do Porto. Porto, Portugal. October 2010.

16. Scalable and Dependable Coordination for Trusted Clouds. Invited talk at *Department of Informatics, University of Minho*. Braga, Portugal. May 2010.

17. Datacenters Under Attack. Invited talk at the *Parallel Data Laboratory Group Meeting (CMU)*. Pittsburgh, USA. April 2010.

18. Improving Critical Infrastructures connectivity during large-scale DoS attacks. Invited talk at the *CyLab student seminar (CMU)*. Pittsburgh, USA. March 2010.

19. Intrusion Tolerance: The killer application for BFT protocols (?) Invited talk at the *BFTW3: Why? When? Where? – Workshop on Theory and Practice of Byzantine Fault Tolerance* Elche, Spain. 2009.

20. Tolerância a Faltas Bizantinas: Resultados interessantes, pesquisas recentes e problemas em aberto. Keynote speech at the *VII Brazilian Workshop on Tests and Fault Tolerance (WTF 2006)*. Curitiba, PR, Brazil.

2.5 Organization, Committees and Reviewing

I co-chaired the program committees of two international workshops, one track on a national conference and was one international conference (Core B, 30% acceptance rate). Furthermore, I participated in 57 program committees of workshops and national and international conferences, reviewed 34 papers for international journals (some of them for two or more review rounds) and two (national) project proposals.

2.5.1 Project Reviewing

1. 2014: Reviewer of a QREN project proposal for the ADI.

2. 2013: External reviewer for a project proposal for the Austrian Science Foundation.

2.6 Research Projects

2.6.1 International Projects

Ongoing projects:

1. User-centric Management of Security and Dependability in Clouds of Clouds (SUPERCLOUD)
   Funding institution: European Commission (EU)
   Project Number: 643964 (H2020 Research and Innovation Action)
   Total award amount: 5,38 MEuro
   Partners: Technikon (coordinator), Orange SA, IBM Research GmbH, Fundaç ão da Faculdade de Ciências da Universidade de Lisboa, Institut Mines-Telecom, TU Darmstadt, Philips Medical Systems Nederlands B.V., Philips Electronics Nederlands B.V. Maxdata Software SA
   Start date: February 2015 (duration: 36 months)
   Role: Core researcher

2. Security for Smart Eletricity Grids (Segrid)
   Funding institution: European Commission (EU)
   Project Number: 607109 (FP7-ICT STREP)
   Total award amount: 2,08 MEuro
   Partners: TNO (Coordinator), SICS Swedish ICT AB, Kungliga Tekniska Hoegskolan, INCODE, European Network for Cyber Security Cooperatief UA, Liander NV, ABB AS, Fundaç ão da Faculdade de Ciências da Universidade de Lisboa, EDP Distribuiç ão Energia SA, ZIV Metering Solutions SL.
   Start date: October 2014 (duration: 36 months)
   Role: Core researcher

3. Scalable, Secure Storage of Biobank Data (BiobankCloud)
   Funding institution: European Commission (EU)

Project Number: 317871 (FP7-ICT STREP)

Total award amount: 2,08 MEuro

Partners: Kungliga Tekniska Hoegskolan (coordinator), Charite - Universitaetsmedizin Berlin, Karolinska Instituet, Humboldt - Universitat Zu Berlin, Fundaç ão da Faculdade de Ciências da Universidade de Lisboa

Start date: November 2012 (duration: 36 months)

Role: Local coordinator and responsible for WP4

2.6.2 National Projects

Ongoing projects:

1. IRCoC - Intelligent Resilience for Cloud-of-Clouds Services
   Funding institution: FCT
   Project Number: PTDC/EEI-SRC/6970/2014
   Total award amount: 100K euros
   Recommended for funding. To start in July 2016 (duration: 36 months)
   Role: Coordinator

2.7 Advising

2.7.1 Current Students and Research Staff

Current PhD students:

1. Luis Norton d'Aguiar Brandão. Advances in Secure Two Party Computation. Dual-degree PhD from FCUL-CMU in Informatics and Electrical and Computer Engineering. Scholarship by FCT. Expected conclusion: Summer 2016.

2. João Sousa. A Platform-as-a-Service for the Cloud-of-Clouds Environment. PhD in Informatics. Scholarship by FCT. Expected conclusion: Summer 2016.

3. Vinicius Vielmo Cogo. Privacy issues in the Storage and Processing of Genome Data. PhD in Informatics. Funded by EC (BiobankCloud and SUPERCLOUD project). Expected conclusion: Fall 2016.

4. Miguel Garcia. Diversity Management in Practical Dependable Systems (Co-advised with Professor Nuno Ferreira Neves). PhD in Informatics. Scholarship by FCT. Expected conclusion: Fall 2017.

Current master students:

1. Joel Correia. Low-cost cloud-based disaster recovery for transactional databases. Mestrado em Engenharia Informática. To be concluded in July 2016.

2. Diogo Soares. Proactive Secret Sharing at Scale (or Practical Secure Distributed Storage). Mestrado em Engenharia Informática. To be concluded in July 2016.

3. André Correia. Aprendizagem Automática em larga Escala nas Redes Sociais para Descoberta de Ameaç as de Seguranç a (Co-advised with Prof. Pedro Ferreira). Mestrado em Seguranç a Informática. To be concluded in July 2016.

Besides these students, I also manage a group of four engineers that are working EU projects.

1. Ricardo Mendes. Currently working on the Charon Cloud-backed File System in the BiobankCloud and SUPERCLOUD projects.

2. Tiago Oliveira. Currently working on the Charon Cloud-backed File System in the BiobankCloud and SUPERCLOUD projects.

3. André Nogueira. Currently working on the development of a dependable SCADA service based on the BFT-SMaRt replication library for the SEGRID project.

2.7.2 Previous Students

I advised *1 concluded PhD* and *25 concluded MsCs*.

2.8 Knowledge Transfer

Open-source software. Most of my knowledge transfer activity is related with the development and maintenance of innovative open-source software systems. Currently, the following open-source projects are under my responsibility:

1. *SCFS: A Shared Cloud-backed File System.* Available at `http://cloud-of-clouds.github.io/SCFS/`. SCFS is a cloud-backed file system that provides strong consistency even on top of eventually-consistent cloud storage services. Its build as a user-level file system, thus providing a POSIX-like interface. SCFS provides also a pluggable backend that allows it to work with a single cloud or with a cloud-of-clouds.

2. *BFT-SMaRt: A High-Performance Byzantine Fault-Tolerant State Machine Replication library.* Available at `http://bft-smart.github.io/library/`. A robust implementation of BFT and CFT state machine replication in Java. This system is described in three conference papers, and is currently being maintained by me and two other researchers.

3. *DepSky: A cloud-of-clouds storage middleware* Available at `http://cloud-of-clouds.github.io/depsky/`. The implementation of the protocols defined in the DepSky papers.

4. *DepSpace: A Byzantine Fault-Tolerant Coordination Service*. Available at `https://github.com/bft-smart/depspace`. This software package is described in the conference paper with the same name, and is currently being maintained by two other researchers.

5. *JSS: Java Secret Sharing*. A small but complex software package that implements Schoenmakers' PVSS (Publicly Verifiable Secret Sharing) scheme in Java. This software package was used in the DepSpace and DepSky systems.

Both BFT-SMaRt and DepSky are being used by several groups in Portugal (UNL, UL), Germany (NEC Labs, TU Braunschweig, U Erlangen), UK (Microsoft Research Cambridge), France (Eurocom), USA (Carnegie Mellow University), Brazil (UnB, UFSC, UFAM), among others.

In the past, I also contributed to the JacORB project (`http://www.jacorb.org/`) with an initial implementation for the ORB IP multicast support.

Industry collaboration. I was the advisor of several master thesis of EDP employees. These works range from a disruptive intrusion-tolerant SCADA architecture for EDP Distribuiç ão to new designs for improving the authentication protocol employed in the EDP smart grid. This lead to fruitful collaborations between FCUL and EDP within the context of european projects such as TClouds and Segrid.

2.9 Awards and Scholarships

Awards:

- One of the best paper candidates (selected from the 13th International IFIP Conference on Distributed Applications and Interoperable Systems (DAIS'13)) that was presented on the plenary joint session of DisCoTec'13.

- Best paper award on the 3rd IEEE International Conference on Cloud Computing and Science (CloudCom'11).

- One of the best papers of the 5th Latin American Dependable Computing Conference (LADC 2011) selected for journal publication.

- Best paper award on 27th Brazilian Symposium on Computer Networks and Distributed Systems – SBRC 2009.

- One of the best papers of the 1st Brazilian Symposium on Computer and Information Security – SBSeg 2005.

Besides these, two student travel awards were won to attend ICDCS'06 and SAC'06. Finally, I received 6 scholarships.

3 Teaching

University teaching in Portugal is organized in years usually starting in September and finishing in July. For instance, year 2010/11 started in September of 2010 and finished in July 2011. The year is divided in two semesters. The first usually goes from September to February, and the second from February to July. There is no summer semester. Lecturing is divided in 3 types: theoretical (the usual meaning of "lecture" in the US), practical (in the laboratory), and theoretical-practical (a combination of the two others). The letters T, P and TP are used to identify the three below. All courses are taught at FCUL (University of Lisbon, Faculty of Sciences), which exception of *"Special Topics in Security: Intrusion Tolerance"*, taught at Carnegie Mellon University to CMU/ECE students and by video-conference to Lisbon students.

YEAR-SEMESTER	CYCLE	COURSE TITLE	TYPE	EVALUATION
2007/08-S1	1	Distributed Systems	T+TP	3,12
2007/08-S2	1	Security*	T	3,35
2007/08-S2	1	Informatics Security*	T+TP	NA
2008/09-S1	1	Distributed Systems*	T+TP	3,28
2008/09-S1	1	Distributed Applications*	T+TP	3,38
2008/09-S2	1	Security	T+TP	NA
2008/09-S2	1	Informatics Security	T+TP	NA
2009/10-S1	1	Distributed Systems	T+TP	3,25
2009/10-S1	1	Distributed Applications	T+TP	3,63
2009/10-S2	2-3	Special Topics in Security: Intrusion Tolerance*	T+TP	NA
2010/11-S1	1	Distributed Systems	T+TP	3.42
2010/11-S1	2-3	Distributed Systems Programming*	T+TP	3,57
2010/11-S2	2-3	Special Topics in Security: Intrusion Tolerance	T+TP	NA
2011/12-S1	1	Distributed Systems	T+TP	3.67
2011/12-S2	1	Security	TP	3,49
2012/13-S1	1	Distributed Systems	T+TP	3.48
2012/13-S1	2-3	Software Security	T+TP	3,76
2012/13-S2	1	Security	TP	3,45
2012/13-S1	2-3	Applied Security	T+TP	NA
2014/15-S1	1	Computer Systems Architecture	TP+P	3,26
2014/15-S1	2	Fault Tolerant Distributed Systems	T+TP	3,5
2014/15-S2	1	Distributed Applications	TP+P	NA
2014/15-S2	2	Intrusion Tolerance	T+TP	NA
2015/16-S1	1	Computer Systems Architecture	TP+P	3,26
2015/16-S1	2	Fault Tolerant Distributed Systems	T+TP	3,5
2015/16-S2	1	Distributed Applications	TP	NA
2015/16-S2	2	Intrusion Tolerance	T+TP	NA
2016/17-S1	1	Computer Systems Architecture	TP+P	3,26
2016/17-S1	2	Fault Tolerant Distributed Systems	T+TP	3,5

The EVALUATION column shows the average *overall evaluation the students gave to to the course/professor* during this semester in a scale from 1 to 4. The information here presented was obtained from the pedagogical inquires made to the students by the end of each semester[1]. The value "NA" means that data collection was not done for this particular course or that less than 10 students filled the pedagogical inquires. CYCLE defines undergrad (1st cycle) or grad courses (2nd-3rd cycles). The courses marked with "*" suffered some relevant reorganization during the period listed, and new pedagogical materials

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[1]Such information is available in FCUL's intranet, at`https://www.fc.ul.pt/en/pagina/1895/inqu\'eritos-pedag\'ogicos-da-fcul`.

or methodologies were developed.