Prof. Dr. Jorge Cardoso

CONTACT INFORMATION

Guest Professor
Karlsruhe Service Research Institute
Karlsruhe Institute of Technology (KIT)
76131 Karlsruhe
Germany

Associate Professor
Department of Informatics Engineering
The University of Coimbra
3030-290 Coimbra
Portugal

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RESEARCH INTERESTS

Semantic service networks: Develop a novel perspective on global services by linking **service models** representing open services (e.g. educational services, Cloud services, software-based services, and human-based services) using **semantic web** theories and technologies. Discover open **service networks** and reason about their topology using scalable algorithms to better understand how large scale distributed service systems evolve and are structured. Apply the results to explore how **cloud computing** infrastructures, standards (e.g. USDL and TOSCA), and offerings (e.g. salesforce.com) are structured and evolve over time.

Topics of research: Service models, cloud computing, service networks, service relationships, semantic web, service dynamics, business process management.

CV OVERVIEW

Jorge Cardoso is Associate Professor and joined the Information System Group at the University of Coimbra in 2009. He has authored/co-authored more than 125 scientific publications and has been part of more than 120 program committees and organization bodies (journals and conferences). He his author/editor of more than 8 books. He holds a US patent titled "System and method of measuring process compliance". GoogleScholar shows more than 4100 citations for his research work (h-index=28). He is currently writing his next book titled "Service networks: a service science discipline". He has participated in European, German and National research projects financed by the European Commission (FP7), the Education, Audiovisual and Culture Executive Agency (EACEA), the German Ministry for Education and Research (BMBF), SAP Research (SAP) and Fundacao para a Ciencia e Technologia (FCT). Previously he worked for several major companies such as SAP Research (Germany) on the Internet of Services, the Boeing Company in Seattle (USA) on Enterprise Application Integration and CCG/Zentrum fur Graphische Datenverarbeitung on Computer Supported Cooperative Work. He gave lectures at the University of Madeira (Portugal) – where he obtained tenure – and the University of Georgia (USA). He is currently leading the Genssiz center for service systems research (10+ members). In the past, he has led 2 large research groups. One while at SAP Research in Germany (15+ members) and another one, the SEED Laboratory (10+ members), while at the University of Madeira.
He is a founding member of the IFIP Working Group 12.7 on Social Semantics. He created and led until 2009 the development of the W3C Unified Service Description Language (USDL). He regularly collaborates with the Knoesis Research Center (USA), the University of Georgia (USA), the University of Bayreuth (DE), the University of Eindhoven (NL), the Open University (UK), The University of Stuttgart (DE), SAP Research (DE), among others. His teaching, training, and consulting activities both in academia and in industry cover topics related to Service Management, Enterprise Architecture, Middleware technologies, and Semantic Web. He is an ISACA Academic Advocate (ISACA is a Worldwide association of IS professionals).

EDUCATION **The University of Georgia**, Athens, GA, USA

Ph.D., Department of Computer Science, August 2002
- Thesis: *Quality of Service and Semantic Composition of Workflows*
- Adviser: Professor Amit Sheth

University of Coimbra, Coimbra, Portugal
M.S., Department of Informatics Engineering, March 1998
B.S., Department of Informatics Engineering, July 1995

PATENTS
(1)
- Kerstin Gerke, **Jorge Cardoso**, Alexander Claus, "System and method of measuring process compliance", US Patent, 20110040587.(2011).

CITATIONS
(4100)
According to GoogleScholar, on May 2013 there were more than 4,100 citations to his work and his h-index was 28. All the publications shown in this CV were selected from a set of more than 120 manuscripts and based on their relevance and number of citations.

SELECTED
JOURNAL
PUBLICATIONS
(21)

[1] **Jorge Cardoso**, John A. Miller, Amit Sheth, Jonathan Arnold, and Krys Kochut. Quality of service for workflows and web service processes. *Journal of Web Semantics*, 1(3):281–308, 2004. (**>700 citations; IF: 2.789**)

[2] **Jorge Cardoso** and Amit Sheth. Semantic e-workflow composition. *Journal of Intelligent Information Systems (JIIS)*, 21(3):191–225, 2003. (**>400 citations; IF: 0.618**)

[3] **Jorge Cardoso**. The semantic web vision: Where are we? *IEEE Intelligent Systems*, 22(5):84–88, 2007. (**>130 citations; IF: 3.144**)

[4] **Jorge Cardoso**, Robert P. Bostrom, and Amit Sheth. Workflow management systems and ERP systems: Differences, commonalities, and applications. *Information Technology & Management*, 5(3/4):319–338, 2004. (**>75 citations; IF: 0.138**))

[5] Krys Kochut, Jonathan Arnold, Amit Sheth, John A. Miller, Eileen Kraemer, Budak Arpinar, and **Jorge Cardoso**. Intelligen: A distributed workflow system for discovering protein-protein interactions. *Distributed and Parallel Databases, An International Journal*, 13(1):43–72, 2003. (**>70 citations; IF: 0.286**))

[6] Kemafor Anyanwu, Amit Sheth, **Jorge Cardoso**, John A. Miller, and Krys Kochut. Healthcare enterprise process development and integration. *Journal of Research and Practice in Information Technology*, 35(2):83–98, 2003. (**>70 citations**)

[7] **Jorge Cardoso**. Complexity analysis of BPEL web processes. *Journal of Software Process: Improvement and Practice*, 12:35–49, 2007. (**>40 citations**)

[8] **Jorge Cardoso**. Approaches to developing semantic web services. *International Journal of Computer Science (IJCS)*, 1(1), 2006. (**>30 citations**)

[9] **Jorge Cardoso** and Carola Lange. A framework for assessing strategies and technologies for dynamic packaging applications in e-tourism. *Journal of Information Technology & Tourism*, 9(1):27–44, 2007. (**>25 citations**)

SELECTED BOOK
CHAPTERS
(30)

[1] **Jorge Cardoso** and Amit Sheth. *Introduction to Semantic Web Services and Web Process Composition*, Semantics and Web Services, Springer, pp. 1–13. 2005. **(>70 citations)**

[2] **Jorge Cardoso**. *How to Measure the Control-flow Complexity of Web processes and Workflows*, Workflow Handbook, Future Strategies Inc., pp. 199–212. 2005. **(>70 citations)**

[3] **Jorge Cardoso** and Amit Sheth. *The Semantic Web and its Applications*. Semantic Web Services, Processes and Applications, Springer, pp. 3–33. 2006. **(>20 citations)**

SELECTED
CONFERENCE
PUBLICATIONS
(68)

[1] **Jorge Cardoso** and Amit Sheth. Process quality of service specification. In *EI3-IC workshop at NIST*, Gaithersburg, MD, USA, 2002. **(>115 citations)**

[2] Jan Mendling, Hajo Reijers, and **Jorge Cardoso**. What makes process models understandable? In *The 5th International Conference on Business Process Management (BPM 2007)*, pp. 48–63, Australia, 2007. **(>110 citations)**

[3] **Jorge Cardoso**, Jan Mendling, Gustaf Neumann, and Hajo Reijers. A discourse on complexity of process models. In *2nd Int. Workshop on Business Process Intelligence*, LNCS 4103, pp. 115–126, Austria, 2006. Springer. **(>85 citations)**

[4] Amit Sheth, **Jorge Cardoso**, John A. Miller, Krys Kochut, and Myong Kang. Qos for service-oriented middleware. In *6th World Multiconference on Systemics, Cybernetics and Informatics*, Vol. 8, pp. 528–534, USA, 2002. **(>85 citations)**

[5] **Jorge Cardoso**. Process control-flow complexity metric: An empirical validation. In *IEEE International Conference on Services Computing (IEEE SCC 06)*, pp. 167–173, USA, 2006. IEEE Computer Society. **(>55 citations)**

[6] Irene Vanderfeesten, Jan Mendling, Hajo Reijers, Wil van der Aalst, and **Jorge Cardoso**. On a quest for good process models: The cross-connectivity metric. In *20th International Conference on Advanced Information Systems Engineering (CAiSE)*, Vol. 5074, pp. 480–494, France, 2008. Springer. **(>50 citations)**

[7] **Jorge Cardoso**, Matthias Winkler, and Konrad Voigt. A service description language for the Internet of services. In *International Symposium on Services Science (ISSS)*, Germany, 2009. **(>45 citations)**

[8] **Jorge Cardoso**. Control-flow complexity measurement of processes and weyuker's properties. In *6th International Conference on Enformatika*, Vol. 8, pp. 213–218, Hungary, 2005. **(>40 citations)**

[9] **Jorge Cardoso**. Discovering semantic web services with and without a common ontology commitment. In *The 3rd Int. Work. on Semantic and Dynamic Web Processes (SDWP)*, pp. 183–190, USA, 2006. IEEE Computer. **(>30 citations)**

[10] Toni Rodrigues, Pedro Rosa, and **Jorge Cardoso**. Mapping XML to existing OWL ontologies. In *International Conference WWW/Internet 2006*, pp. 72–77, Spain, 2006. **(>30 citations)**

[11] John A. Miller, **Jorge Cardoso**, and Gregory Silver. Using simulation to facilitate effective workflow adaptation. In *Proc. of the 35th Annual Simulation Symp. (ANSS)*, pp. 177–181, USA, 2002. IEEE Computer Society. **(>25 citations)**

[12] **Jorge Cardoso**. E-tourism: creating dynamic packages using semantic web processes. In *W3C Workshop on Frameworks for Semantics in Web Services*, Austria, 2005. **(>20 citations)**

[13] **Jorge Cardoso**. Evaluating the process control-flow complexity measure. In *IEEE International Conference on Web Services (ICWS 2005)*, pp. 803–804, USA, 2005. IEEE Computer Society. **(>15 citations)**

[14] **Jorge Cardoso**. About the data-flow complexity of web processes. In *6th International Workshop on Business Process Modeling, Development, and Support: Business Processes and Support Systems: Design for Flexibility*, pp. 67–74, Portugal, 2005. **(>15 citations)**

[15] Josef Spillner, Matthias Winkler, Sandro Reichert, **Jorge Cardoso**, and Alexander Schill. Distributed contracting and monitoring in the Internet of Services. In *9th IFIP international conference on Distributed Applications and Interoperable Systems*, Vol. 5523, pp. 129–142, Portugal, 2009. Springer. **(>15 citations)**

BOOKS
(7)

Authored

[1] **Jorge Cardoso**. *Programming Distributed Systems in Java*, FCA Editora Informática, pp. 384, 2008.

Translation

[2] **Jorge Cardoso**. *Gestão de Workflows - Modelos, Métodos e Sistemas*. Coimbra Univ. Press, pp. 316, 2009.

In preparation

[3] **Jorge Cardoso**. *Modeling services with USDL: The alpha Unified Service Description Language.* (draft pdf)

Edited

[4] **Jorge Cardoso** and Wil van der Aalst. *Handbook of Research on Business Process Modeling.* Information Science Reference, USA, 2009.

[5] **Jorge Cardoso** and Miltiadis Lytras. *Semantic Web Engineering in the Knowledge Society.* Information Science Reference, USA, 2008.

[6] **Jorge Cardoso**. *Semantic Web Services: Theory, Tools and Applications.* Information Science Reference, USA, 2007.

[7] **Jorge Cardoso**, Martin Hepp, and Miltiadis Lytras. *The Semantic Web: Real-World Applications from Industry.* Springer, Germany, 2007.

[8] **Jorge Cardoso** and Amit Sheth. *Semantic Web Services, Processes and Applications.* Springer, Germany, 2006.

AWARDS AND
RECOGNITIONS
(6)

- In 2010, he was selected by German Ministry for Education and Research (BMBF) and the University of Leipzig to manage a €4M research project on the business process management and Semantic Web. He declined the offer.
- Full member of IFIP WG 12.7 on social semantics and collaborative intelligence.
- The BMBF identified that the most important outcome of the TEXO project (a €40M German project) was the research he led producing the USDL specification.
- In October 2006, his paper Quality of Service for Workflows and Web Service Processes was the article from the Web Semantics Journal (IF: 2.789) with the largest number of citations.
- PhD/MSc Scholarship (1995-2002), Foundation for Science and Technology (FCT).
- Two Awards given by the Portuguese Ministry of Education for contributions to computer science.

CONFERENCE
TUTORIALS
(6)

[1] **Jorge Cardoso**, Christoph Bussler, and Amit Sheth, Lifecycle of Semantic Web Processes, The 17th Conf. on Adv. Inf. Systems Engineering (**CAiSE**), 2005.

[2] **Jorge Cardoso**, On the move to Semantic Web services, 6th Int. Enformatika Conference, 2005.

[3] **Jorge Cardoso**, Francisco Curbera, and Amit Sheth, Service Oriented Archiectures and Semantic Web Processes, The Thirteenth Int. World Wide Web Conference (**WWW**), 2004.

[4] **Jorge Cardoso** and Amit Sheth, Semantic Web Processes: Semantics Enabled Annotation, Discovery, Composition and Orchestration of Web Scale Processes, 4rd Int. Conference on Web Information Systems Engineering (**WISE**), 2003.

[5] **Jorge Cardoso** and Amit Sheth, Semantic Web Processes, Net.Objects Days (NODe) and MATES, 2003.

[6] **Jorge Cardoso**, Christoph Bussler, Amit Sheth, and Dieter Fensel, Semantic Web Services and Processes: Semantic Composition and Quality of Service, On the Move Conferences (**OTM**), 2002.

INVITED
KEYNOTES/TALKS **Invited keynotes (6)**
(23)

[1] The Internet of Services, 4th Int. Conf. on Soft. and Data Tech. (ICSOFT), 2009.

[2] Service Engineering for The Internet of Services, Conference IPBPM Lisbon, 2009.

[3] Service Engineering for the Internet of Services, 10th Int. Conf. on Enterprise Information Systems (ICEIS), 2008.

[4] Where do the Semantic Web and SOA meet?, Non Functional Properties and Service Level Agreements in Service Oriented Computing Workshop, 2007.

[5] Using Semantics to Enhance B2B Integration, 2nd International Conference on Metadata and Semantics Research (MTSR), 2007.

[6] Quality Metrics for Business Processes, I Taller sobre Procesos de Negocio e Ingeniería del Software (PNIS), 2007.

[7] On the move to Semantic Web services, 6th International Enformatika Conference, 2005.

Invited Talks (17)

- Open Semantic Service Networks, University of Stuttgart, Germany, 2012.
- Challenges for Open Semantic Service Networks, University of Potsdam, Germany, 2012.
- Description and portability of cloud services with USDL and TOSCA, University of Hamburg, Germany, 2012.
- Dynamic Open Semantic Service Networks, University of Genève, Switzerland, 2012.
- Community-based knowledge harvesting Linked-USDL standardization, IFIP WG 12.7, University of Amsterdam, The Netherlands, 2012.
- Digital patient models and workflow models, University of Leipzig, Leipzig, 2011.
- Surgical workflow management, University of Leipzig, Leipzig, Germany, 2010.
- ISE: Model-driven Service Engineering, StatoilHydro, Stavanger, Norway, 2008.
- Semantics in Applications, 2nd Innov. forum "Software Saxony", Dresden, Germany, 2008.
- Service Engineering for Future Business Value Networks, Spain, 2008.
- Enterprise Service/Process Modeling Approach, IAO, Stuttgart, Germany.
- Tools and applications to make organizational knowledge explicit for the Semantic Web, TU Dresden, Germany, 2007.

- Semantic Web Challenges, University of Bergen, Norway, 2007.
- Increasing your ROI by making your organizational knowledge explicit for the Semantic Web, University of Koblentz, Germany, 2007.
- BPQM: Theory and applications, University of Ciudad Real, Spain, 2007.
- Business Process Quality Metrics, TU Eindhoven, The Netherlands, 2006.
- Semantic Web Services, Roma Tre University, Italy, 2003.

SUMMER SCHOOLS (3)
- The Semantic Web for Systems and Distributed Services, University of Cordoba, Argentina. 2009.
- Semantic Web Services and Semantic-based Service Engineering. Reasoning Web, Italy. 2008.
- Process Management and Integration with SAP, The International Summer School on Business Process and Software Engineering, University of Castilla-La Mancha, Spain. July 8-11, 2008.

GRANTS
- PI (with Dr. Carlos Bento), "Location and behavior prediction", Portugal Telecom Innovation, € 30.000, July 1, 2012 to June 30, 2013.
- PI, "On the suitability of USDL for service description – A case study of a telecom operator", Portugal Telecom/SAPO, € 7.500, July 1, 2012 to June 30, 2013.
- Workpackage Leader, "Towards Trust in Quality Assurance Systems", European Union (EACEA), TRUST € 879,594, November 15, 2011 to November 11, 2013.
- Research Leader (and Workpackage Leader), "TEXO", German Ministry for Education and Research (BMBF), TEXO/Theseus, € 40.000.000, 2007 to 2011.
- Scientific Project Manager, "ToE AGORA", SAP AG, € NA, 2008 to 2009.
- Workpackage Leader, "Semantically-enabled Heterogeneous Service Architecture and Platforms Engineering", European Union (EU), SHAPE, € 5.700.000, December 1, 2007 to May 31, 2010.
- Scientific Consultant, "PATI", Portuguese Foundation for Science and Technology (FCT), € 90.224, 2009 to 2011.
- PI, "Enabling Enterprise Engineering with Knowledge Management", University of Madeira, € 14.000, 2006 to 2007.
- PI, "Empirical Study of Business Process Complexity Metrics", University of Madeira, € 15.500, 2006 to 2007.
- PI, "Analyzing the Complexity of Web Processes", Portuguese Foundation for Science and Technology (FCT), POSI/EIA/61214/2004, € 11.000, 2005 to 2006.
- PI, "Enabling Semantic Web Processes with QoS for the Tourism Industry ", Portuguese Foundation for Science and Technology (FCT), € 59.000, 2005 to 2006.

PHD STUDENT ADVISING (4)
Konrad Voigt. Semi-automatic matching of heterogeneous model-based specifications, PhD, SAP Research CEC Dresden and Technical University of Dresden, Dresden, Germany. November 2011. (SAP Research industry supervisor: 2007–2009).

Matthias Winkler. SLA management in the Internet of Services, PhD, SAP Research CEC Dresden and Technical University of Dresden, Dresden, Germany. June 2010. (SAP Research industry supervisor: 2007–2009)

Délia Canha Gouveia. Modeling and Analyzing the Quality of Service of Workflows using Petri Nets, University of Madeira, Portugal. (Supervision: 2007–2009).

Janez Hrastnik. Improving business performance by applying knowledge management to process-oriented quality management, University of Madeira, Portugal. (Supervision: 2006–2008).

TEACHING EXPERIENCE
University of Bayreuth, Bayreuth, Germany
- *Visiting Professor*   **August 2012**

University of Coimbra, Coimbra, Portugal
- *Assistant Professor*   **February 2009 to December 2011**

University of Madeira, Funchal, Portugal
- *Assistant Professor (tenured 2009)*   **March 2003 to January 2009**

The University of Georgia, Athens, USA
- *Teaching Assistant*   **August 2000 to May 2002**

Polytechnique Institute of Leiria, Leiria, Portugal
- *Teaching Assistant*   **September 1997 to July 1998**

Courses taught (16)
- **PhD courses:** Advanced Topics in Information Systems (2009–2010); Enterprise Integration (2000).
- **MSc courses:** Human Computer Interaction (2009–2011); Information Systems Management (2009–2011); Organization, Behavior, Knowledge and Innovation (2009–2011); Information Systems (2009); Technological Architecture of Information Systems (2004); Information and Communication Technologies Applied to Tourism (2003–2004).
- **BSc courses:** Information Systems Architecture (2003–2007); Semantic Web (2004–2006); Distributed Systems (2003–2007); Decision Support Systems (2002–2005); Computer Architecture (2003–2004); Introduction to Computing and Programming (2001); Computer and Programming (1997); Microprocessors (1997).

PROFESSIONAL
SERVICE

Editorial Board Member (5)
- International Journal on Semantic Web and Information systems (IF: 2.345)
- Modern Software Engineering Concepts and Practices: Advanced Approaches, eds Ali H. Dogru and Veli Bicer, Information Science Pub, ISBN: 1609602153, 2011.
- International Journal of E-Government Research (IJEGR)
- Eastern-European Journal of Enterprise Technologies (2011–present).
- Editor-in-Chief, Int. J. of Agile and Extreme Soft. Dev. (IJAESD), (2006–2007).

Special issue editor (4)
- *Search using Metadada, Semantic, and Ontologies*, Int. J. of Metadata, Semantics and Ontologies (3(1),2008). Guest Editors: Jorge Cardoso, Christoph Bussler, and Francesco Guerra.
- *Teaching Semantic Web: Integration to CS/IS curriculum and Teaching Case Studies*, Int. J. of Teaching and Case Studies (1(4),2008). Guest Editors: Miltiadis Lytras, Jorge Cardoso, Martin Hepp and Miguel Angel Sicilia.
- *Enterprise Resource Planning Systems in the Banking Industry*, Int. J. of Electronic Banking (1(1),2008). Guest Editors: Miltiadis Lytras, Patricia Ordonez De Pablos and Jorge Cardoso.
- *Web Services*, VII/5 issue, The European Journal for the Informatics Professional, Guest Editors: Jose Carlos del Arco-Prieto, Jes Arias-Fisteus, Oscar Corcho-Garcia, and Jorge Cardoso.

Journal Referee Service
- IEEE TSMCJ. IEEE TKDE. IEEE Internet Computing. IEEE TSC. VLDB Journal. The Service Industries Journal. Communications of the ACM. ACM Transactions on Internet Technology (TOIT). ACM Transactions on Modeling and Computer Simulation (TOMACS). Information Processing Letters (IPL). Information Processing & Management (IPM). Information Systems (IS). Journal of Web Semantics (JWS). The International Journal of Web Services Research (JWSR). Journal of Systems and Software. Journal of Zhejiang University Science (JZUS). Journal of Computing

and Information Technology (CIT). IBM Systems Journal. International Journal of Cooperative Information Systems (IJCIS).

Conference Service (>25)
- Work-in-Progress Track Chair, Int. Conf. on Web Services (ICWS 2008–2013).
- Program Co-chair, 18th Int. Conf. on Cooperative Inf. Sys. (CoopIS 2010).
- Doctoral Consortium Chair. 9th and 10th Int. Conf. on Enterprise Inf. Sys. (ICEIS).
- Organizer. 3rd Int. Conf. on Interop. of Enterprise Sys. and Arch. (I-ESA 2007).
- Conf. Chair. 1–3th Int. Conf. on Semantic and Dynamic Web Processes (SDWP).
- Organizer. Int. Work. on Dynamic Distributed Systems (IWDDS 2006).
- Tutorial Chair and co-chair, IEEE Int. Conf. on Services Computing (SCC 2004).

Program Committee Member (>100)
He has served as a program committee member for **more than 100 conferences**. Prominent venues include:

- Int. Conf. on Web Services (IEEE ICWS), Research Track, 2005–2013.
- Int. Conf. on Web Services (IEEE ICWS), Industry Track: 2008–2012.
- Int. Conf. on Web Services (IEEE ICWS), Work-in-Progress Track: 2011–2012,
- Int. Conf. Business Process Management Conference (BPM), 2006–2009.
- Int. Conf. on Services Computing (SCC), 2004.
- Int. Conf. on Cooperative Information Systems (CoopIS), 2011.
- Int. Conf. on Advanced Information Systems Engineering (CAiSE), 2006.
- Int. Conf. on Service Oriented Computing (ICSOC), 2008.
- European Conference on Web Services (ECOWS), 2010–2011.
- Int. Conf. on Database and Expert Systems Applications (DEXA), 2008.
- ACM Symposium on Applied Computing (SAC), 2005–2009.

Project expert reviewer
He is a project expert reviewer for the following organizations:

- Italian Ministry of Education, University and Research (Ministero dell'Istruzione, dell'Universitá e della Ricerca).
- Austrian Science Fund (Fonds zur Förderung der wissenschaftlichen Forschung).

PROFESSIONAL EXPERIENCE

SAP Research, Desden, Germany

Senior Researcher/Project Manager   **November 2007–June 2009**
- Managed a distributed cross-functional, cross-organizational team of 15+ researchers to create the ISE methodology and tools for Service Engineering.
- Initiated and lead the development of the Unified Service Description Language (USDL).
- USDL and ISE were identified the most visible outputs of the TEXO IT German project (Funding: 40 million).

The Boeing Company, Seattle, WA, USA

Adv. Computing and Informatics Technologist   **June 1999–November 1999**
- Lead the development of a pilot system called MARATHON to demonstrate the applicability of BPMS at the Phantom works division of Boeing.

CCG/ZGDV, Coimbra, Portugal

Network administrator and Programmer   **September 1994–July 1997**
- Developed IS/IT strategy and roadmap based on ZGDV business strategy and managed its execution.

- Responsible for the acquisition, setup, and administration of all hardware and software systems.

University of Coimbra, Coimbra, Portugal

Programmer   **1991/1993–1994**
- C, C++, and Assembly programming.
- Drivers implementation and User Interface design.

REFERENCES AVAILABLE TO CONTACT

Dr. Amit Sheth (e-mail: amit.sheth@wright.edu; phone: +1-937-775-5217)
- Professor, Kno.e.sis Center, Wright State University, USA
- ⋆ *Dr. Sheth was my graduate adviser.*

Dr. Wil van der Aalst (e-mail: w.m.p.v.d.aalst@tue.nl; phone: +31-40-247-4295)
- Professor, Information Systems, Technical University of Eindhoven, Netherlands
- ⋆ *Dr. van der Aalst was a visiting faculty when I was doing my PhD. Since then we have been working over the years.*

Dr. Christoph Bussler (e-mail: chbussler@aol.com)
- Senior Staff Software Engineer, Merced Systems, Inc., USA
- ⋆ *Dr. Bussler was my colleague will I worked at The Boeing Company. Since then we have collaborated on research.*

Dr. John Miller (e-mail: jam@cs.uga.edu; phone: +1-706-542-3440)
- Professor, Computer Science Department, The University of Georgia, USA
- ⋆ *Dr. Miller was my PhD co-advisor and we have been working over the years.*

MORE INFORMATION

More information can be found at
homepage.