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# Analysis of Social and Information Networks

## MAP-I Curricular Unit in Technology

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### Summary

*This document presents a proposal of a Ph.D. level course intended as a Curricular Unit in Technology for the MAP-I Doctoral Programme in Informatics. It is offered jointly by (i) Universidade do Porto, Departamento de Engenharia Informática and (ii) Universidade de Aveiro, Departamento de Electrónica, Telecomunicações e Informática. The course will cover social networks concepts, theories, and visual-analytic methods and their applications for mining social and information networks. Topics include methods for community detection, information extraction, expert finding, influence detection, and business intelligence in social media.*

### Instructors

Euarda Mendes Rodrigues (Coordinator)	DEI, FEUP	eduarda@fe.up.pt
José Luis Oliveira	DETI, UA	jlo@ua.pt

### Course Objectives

Social media services have led to the emergence of huge amounts of user-generated content in the World Wide Web, which are valuable sources of information and business intelligence. Underlying these services are rich social structures comprising millions of individuals and organizations, who interact online every day through information and media sharing. Analysis of such social structures is fundamental for understanding users behavior and network dynamics. The first part of the course covers the fundamentals in graph theory, social network analysis and visualization. The second part addresses structural and dynamical properties observed in large scale networks. The third part covers the fundamentals of web information retrieval and link analysis. The final part of the course presents several network mining applications. The topics covered by this course are also covered in several courses at leading academic institutions in the area, namely:

- Social and Information Network Analysis, Jure Leskovec, Stanford University
- Networks: Theory and Application, Lada Adamic, University of Michigan
- Networks, Jon Kleinberg, Cornell University
- Network Theory, Mark Newman, University of Michigan

- Structure and Dynamics of Networked Information, David Kempe, University of Southern California

## Learning Outcomes

At the end of the this course the students should be able to:

- explain key concepts and techniques in social network analysis;
- apply a range of techniques for characterizing network structure;
- define methodologies for analysing explicit and implicit networks in several application contexts;
- demonstrate knowledge of recent research in the area and exhibit technical writing and presentation skills.

## Teaching Methods and Evaluation

The course is composed by theoretical-practical classes, discussions, student assignments and presentations. The student evaluation is based on the following key components:

- 50% Final Exam
- 40% Course Assignments and Presentations
- 10% Participation in Class

## Course Content

The course is structured in four parts: (I) Introduction to Social Network Analysis, (II) Network Structure and Dynamics, (III) Information Networks and the World Wide Web, and (IV) Mining Social and Information Networks: Techniques and Applications.

### Part I - Introduction to Social Network Analysis

1. **Fundamentals of graph theory:** Paths and connectivity. Distance and breadth-first search. Connected components.
2. **Basic social network metrics:** Degree, clustering coefficient, cohesion, density, centrality measures, clique-census.
3. **Exploratory network analysis:** Data collection, analysis and interactive visualization.

## Part II - Network Structure and Dynamics

1. **Community structure:** Strength of weak ties, community detection and betweenness centrality. Homophily, selection and social influence. Modularity. Graph partitioning methods.
2. **The small-world phenomenon:** Clustering. Milgram's small world experiment. Structure and randomness. Small world models.
3. **Power laws and preferential attachment phenomena:** Popularity as a network phenomenon. Rich-get-richer models and the effect of recommendation systems.
4. **Cascading behavior in networks:** Cascades and clusters. Diffusion and the role of weak ties. Knowledge, thresholds, and collective action.

## Part III - Information Networks and the World Wide Web

1. **Information retrieval overview:** Scoring, TF-IDF, Vector space model.
2. **Web crawling and link analysis:** The problem of ranking, PageRank, Hubs and Authorities.
3. **Information extraction:** Named entity recognition, normalization, relation extraction.

## Part IV - Mining Social and Information Networks: Techniques and Applications

1. **Social web mining case studies:** Analysis of explicit and implicit user interaction networks, semantic networks, folksonomies.
2. **Business intelligence:** Information extraction and sentiment analysis of social media streams.
3. **Influence detection and expert finding:** Measures of user influence. Identification of user roles and topic experts in online communities.
4. **Biological networks:** Graph-based data mining and information extraction.

## Main Bibliography

- Easley, D., & Kleinberg, J. Networks, Crowds, and Markets: Reasoning About a Highly Connected World. Cambridge University Press, 2010.
- Hansen, D.L, Schneiderman, B. & Smith, M. (2011). Analyzing Social Media Networks with NodeXL: Insights from a Connected World. New York: Morgan Kaufmann.

- Manning, C.D., Raghaven, P. & Schutze, H. (2008). Introduction to Information Retrieval, Cambridge University Press.
- Russel, M.A. (2011). Mining the Social Web. O'Reilly Media, Inc.

## Additional Bibliography

- Hanneman, R. A. & Riddle, M. (2005). Introduction to social network methods. Riverside, CA: University of California, Riverside.
- Wasserman, S. & Faust, K. (1994). Social network analysis: Methods and applications. New York: Cambridge University Press.

## Software

- NodeXL - an interactive graph analysis and visualization toolkit for MS Excel 2007 / 2010 (Windows) - <http://nodexl.codeplex.com>
- SNAP - a C++ library for working with massive network datasets (Windows, Linux, Mac) - <http://snap.stanford.edu/>
- Pajek - a program for large network analysis (Windows) - <http://vlado.fmf.uni-lj.si/pub/networks/pajek/>

## Instructors Team

The team of instructors is actively involved in research in the field of social network analysis and information retrieval. A short biography of the instructors is provided below:

**Eduarda Mendes Rodrigues** is an Assistant Professor at the Department of Informatics Engineering of the Faculty of Engineering of the University of Porto. She holds a Ph.D. in Electronic & Electrical Engineering from University College London, UK, and a *Licentiatura* degree in Electrical and Computer Engineering from the University of Porto, Portugal. Eduarda's prior experience includes a four year post-doctoral position at Microsoft Research Cambridge, UK and a one year research fellow position at University Colledge London, UK.

Eduarda's research broadly covers the areas of data mining and web information retrieval, with particular emphasis on social network mining and user-centered technologies for social computing. She is currently involved in FCT-UT Austin, QREN and Microsoft External Research-funded projects and is an active member of the US-based Social Media Research Foundation. Eduarda has published in top international venues and her work at Microsoft Research has led to three US patent applications.

**José Luis Oliveira** holds a PhD from University of Aveiro where is currently an Associated Professor. He is the coordinator of the bioinformatics group of University of Aveiro (<http://bioinformatics.ua.pt/>) and his main research interests are in the area of distributed systems, information retrieval and biomedical informatics. He has been involved in more than 20 research projects and he has more than 200 publications in books, book chapters, journals and conferences.

# MARIA EDUARDA SILVA MENDES RODRIGUES

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PERSONAL INFORMATION	Rua Clube dos Caçadores, 802 R/C Esq. 4430-057 Vila Nova de Gaia Portugal	<i>mobile:</i> +351 91 323 0437 <i>e-mail:</i> eduarda@fe.up.pt <i>web:</i> <a href="http://www.fe.up.pt/~eduarda">http://www.fe.up.pt/~eduarda</a>
RESEARCH INTERESTS	Data mining, in particular, web link analysis and text mining, web information retrieval, social network analysis and applied machine learning.	
EDUCATION	<b>University College London</b> , London, United Kingdom <i>Doctor of Philosophy in Electronic and Electrical Engineering</i>	<b>2000–2004</b>
	<b>Universidade do Porto</b> , Porto, Portugal <i>Licenciatura in Electrical and Computer Engineering (5-year degree)</i> Specializing in Telecommunications. Final grade 16 out of 20 (amongst the top 10% students, out of 189 graduates).	<b>1993–1998</b>
PROFESSIONAL EXPERIENCE	<b>Universidade do Porto, Faculdade de Engenharia</b> , Porto, Portugal <i>Assistant Professor</i>	<b>09/2009–to date</b>
	<b>Microsoft Research</b> , Cambridge, United Kingdom <i>Post-Doctoral Researcher</i>	<b>04/2007–08/2009</b>
	<b>Microsoft Research</b> , Cambridge, United Kingdom <i>Research Consultant</i>	<b>09/2005–03/2007</b>
	<b>University College London</b> , London, United Kingdom <i>Research Fellow</i>	<b>10/2004–12/2005</b>
	<b>University College London</b> , London, United Kingdom <i>Teaching Assistant</i>	<b>09/2000–07/2003</b>
	<b>INESC Porto</b> , Porto, Portugal <i>Research Engineer</i>	<b>09/1998–12/1999</b>
AWARDS	Post-doctoral scholarship awarded by the Portuguese Foundation for Science and Technology (ref. SFRH/BPD/24171/2005).	<b>2005</b>
	UCL Graduate School Student Conference Fund Major Award, to attend and present at the FUZZ-IEEE'2003 conference, US.	<b>2003</b>
	UCL Graduate School Student Conference Fund Major Award, to attend and present at the FLINT'2001 workshop, University of Berkeley, US.	<b>2001</b>
	Doctoral scholarship awarded by the Portuguese Foundation for Science and Technology (ref. PRAXIS XXI/BD/21768/99).	<b>1999</b>
PROJECTS	<b>REACTION: Retrieval, Extraction, and Aggregation Computing Technology for Integrating and Organizing News</b> <i>Investigator and workpackage leader. Project funded by the FCT UT Austin programme.</i>	<b>2010–to date</b>
	<b>LUL: Living Usability Lab</b> <i>Investigator. Project funded by QREN.</i>	<b>2010–to date</b>

<b>NODEXL:</b> <i>Network Overview, Discovery and Exploration for Excel</i> Principal investigator in Portugal. Project funded by Microsoft Research.	<b>2008–to date</b>
<b>Social Footprints:</b> <i>Mining social interactions in online communities</i> Principal investigator, Microsoft Research.	<b>2007–2009</b>
<b>Research Desktop:</b> <i>Conceptual design of an activity-based desktop environment</i> Investigator, Microsoft Research.	<b>2007–2009</b>
<b>Community Buzz:</b> <i>Conceptual design of a service for information retrieval and analysis of online discussions groups</i> Investigator, Microsoft Research.	<b>2006–2007</b>
<b>InSite Live:</b> <i>Modeling the Web link structure</i> Principal investigator, Microsoft Research.	<b>2006–2007</b>
<b>MASTS:</b> <i>Measurement at All Scales in Time and Space</i> Research Fellow, UCL. Project funded by EPSRC, United Kingdom.	<b>2004–2005</b>
<b>CANDLE:</b> <i>Collaborative And Network Distributed Learning Environment</i> Researcher, UCL. Project funded by EU FP5/IST.	<b>2000–2003</b>
<b>COBIP:</b> <i>Telework Co-ordination services for co-Operative Business Processes</i> Researcher, INESC Porto. Project funded by EU.	<b>1998–1999</b>
<b>SCREEN:</b> <i>Service Creation Engineering ENvironment</i> Developer, INESC Porto. Project funded by EU.	<b>1998–1999</b>

RESEARCH  
TEAM

**Ph.D. Students:**

- |                                                                                        |                     |
|----------------------------------------------------------------------------------------|---------------------|
| • Carlos Figueiredo, PDMD–FEUP, UT Austin<br>Co-supervisor with José Azevedo (FLUP).   | <b>2011–to date</b> |
| • Cláudio Barradas, PRODEI–FEUP<br>Co-supervisor with João José Pinto Ferreira (FEUP). | <b>2010–to date</b> |

**Researchers:**

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|--------------------------------------------------------------------------------------|---------------------|
| • Matko Bošnjak, FEUP<br>Researcher working on the REACTION project (BI, 12 months). | <b>2011–to date</b> |
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**M.Sc. Students:**

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|----------------------------------------------------------------------------------------------------|------------------|
| • Luís Gonçalves, MIEIC–FEUP and Shortcut (INOVA–RIA)<br>Advisor at host institution: Telmo Silva. | <b>2011–2012</b> |
| • Rui Archer, MIEIC–FEUP                                                                           |                  |
| • Eduardo Oliveira, MIEIC–FEUP<br>Co-supervisor: Luís Sarmiento (SAPO Labs).                       | <b>2010–2011</b> |
| • José Martins, MIEIC–FEUP<br>Co-supervisor: Luís Sarmiento (SAPO Labs).                           |                  |
| • Pedro Tenreiro, MIEIC–FEUP and Fraunhofer-AICOS<br>Advisor at host institution: Paula Silva.     |                  |
| • Tiago Boldt Sousa, MIEIC–FEUP and Fraunhofer-AICOS<br>Advisor at host institution: Paula Silva.  |                  |
| • Vitor Teixeira, ISCTE<br>Co-supervisor with Miguel Sales Dias (Microsoft).                       |                  |

## Alumni:

- Carlos Pires, MIEIC–FEUP and Microsoft Language Development Center **2009–2010**  
Advisor at host institution: Miguel Sales Dias.
- Daniel Sousa, MIEIC–FEUP
- Fernando Pinto MIEIC–FEUP and Microsoft Language Development Center  
Advisor at host institution: Miguel Sales Dias.
- Emilio Martinez, M.Sc. Telecoms, University College London **2001–2002**  
Co-supervisor with Lionel Sacks.
- Amit Parmar, M.Sc. IT, University College London **2000–2001**  
Co-supervisor with Lionel Sacks.
- Yaseen Chattun, M.Sc. IT, University College London.  
Co-supervisor with Lionel Sacks.

## Interns:

- Elena Zheleva, Ph.D Student, Universidade de Maryland, US **05/2009–07/2009**  
Microsoft Research Internship.  
Co-supervisor with Nataša Milic-Frayling.
- Max Wilson, Ph.D. Student, Universidade de Southampton, UK **08/2008–10/2008**  
Microsoft Research Internship.
- Blaz Fortuna, Ph.D Student, Jožef Stefan Institute, Slovenia **09/2006–02/2007**  
Microsoft Research Internship.  
Co-supervisor with Nataša Milic-Frayling.

## PUBLICATIONS

### Thesis:

1. Silva Mendes Rodrigues, M.E. “Development of Novel Fuzzy Clustering Techniques in the Context of e-Learning”. *PhD Thesis*, Department of Electronic and Electrical Engineering, University College London, UK, Nov. 2004.

### Book chapters:

1. Mendes Rodrigues, E., Milic-Frayling, N. “Flickr: Linking people, photos and tags”. In: Hensen, D., Shneiderman, B., Smith, M. *Analyzing Social Media Networks with NodeXL*, Morgan-Kaufmann, 2010. ISBN-13: 978-0-12-382229-1.
2. Mendes, M.E.S. and Sacks, L. “Dynamic Knowledge Representation for e-Learning Applications”. In: M. Nikravesh, L.A. Zadeh, B. Azvin and R. Yager (Eds.), *Enhancing the Power of the Internet - Studies in Fuzziness and Soft Computing*, Springer, vol. 139, pp. 255-278, January 2004. ISBN: 3-540-20237-4.

### Conference papers:

1. Pires, C., Pinto, F., Mendes Rodrigues, E., Sales Dias, M. “On the benefits of speech and touch interaction with communication services for mobility impaired users”, in *Proc. of the 1st International Living Usability Lab Workshop on AAL Latest Solutions, Trends and Applications*, AAL 2011, Jan. 2011.
2. Sousa, D., Sarmiento, L., Mendes Rodrigues, E. “Characterization of the Twitter @replies Network: are user ties social or topical?”, in *Proc. of the 2nd International Workshop on Search and Mining User-generated Contents*, at the 19th ACM International Conference on Information and Knowledge Management, CIKM 2010, Oct. 2010.
3. Pires, C., Pinto, F., Mendes Rodrigues, E., Sales Dias, M. “Improving the Social Inclusion of Mobility Impaired Users”, in *Proc. of the Social Mobile Web 2010 Workshop*, at the 12th International Conference on Human-Computer Interaction with Mobile Devices and Services, MobileHCI 2010, Sep. 2010.

4. Zheleva, E., Guiver, J., Mendes Rodrigues, E., Milic-Frayling, N. "Statistical Models of Music-listening Sessions in Social Media", in *Proc. of the ACM 19th International World Wide Web Conference*, WWW 2010, Apr. 2010.
5. Mendes Rodrigues, E. and Milic-Frayling, N. "Socializing or Knowledge Sharing? Characterizing Social Intent in Community Question Answering", in *Proc. of ACM 18th Conference on Information and Knowledge Management*, CIKM 2009, Nov. 2009.
6. Lee, C.T., Vinay, V., Mendes Rodrigues, E., Kazai, G., Milic-Frayling, N., Ignjatovic, A. "Measuring system performance and topic discernment using generalized adaptive-weight mean", in *Proc. of ACM 18th Conference on Information and Knowledge Management*, CIKM 2009, Nov. 2009.
7. Lee, C.T., Mendes Rodrigues, E., Kazai, G., Milic-Frayling, N., Ignjatovic, A. "Model for Voter Scoring and Best Answer Selection in Community Q&A Services", in *Proc. of the 2009 IEEE/WIC/ACM International Conference on Web Intelligence*, WI 2009, Sep. 2009.
8. Mendes Rodrigues, E. "Mining Online communities", in *Proc. of the UK Symposium on Knowledge Discovery & Data Mining 2009*, Salford, UK, Apr. 2009. *Invited Talk*.
9. Smith, M., Shneiderman, B., Milic-Frayling, N., Mendes Rodrigues, E., Barash, V., Dunne, C., Capone, T., Perer, A. and Gleave, E. "Analyzing Social Media Networks with NodeXL", in *Proc. of the 4th Intl. Conf. on Communities and Technologies*, Penn State Univ., PA, USA, Jun. 2009.
10. Oleksik, G., Wilson, M.L., Tashman, C., Mendes Rodrigues, E., Kazai, G., Smyth, G., Milic-Frayling, N. and Jones, R. "Lightweight Tagging Expands Information and Activity Management Practices", in *Proc. of the ACM CHI 2009 Conference on Human Factors in Computing Systems*, Boston, USA, Apr. 2009.
11. Mendes Rodrigues, E., Milic-Frayling and N., Fortuna, B. "Social Tagging Behaviour in Community driven Question Answering", in *Proc. of the 2008 IEEE/WIC/ACM International Conference on Web Intelligence*, WI 2008, Sydney, Australia, Dec. 2008.
12. Mendes Rodrigues, E., Milic-Frayling, N. and Fortuna, B. "Detection of Web Subsites: Concepts, Algorithms, and Evaluation Issues", in *Proc. of the 2007 IEEE/WIC/ACM International Conference on Web Intelligence*, WI 2007, Silicon Valley, CA, USA, Nov. 2007.
13. Fortuna, B., Mendes Rodrigues, E. and Milic-Frayling, N., "Improving the Classification of Newsgroup Messages through Social Network Analysis", in *Proc. of ACM Sixteenth Conference on Information and Knowledge Management*, Lisbon, Portugal, CIKM 2007, Nov. 2007.
14. Mendes Rodrigues, E. and Sacks, L. "Learning Topic Hierarchies from Text Documents using a Scalable Hierarchical Fuzzy Clustering Method", in *Proc. of the 5th Annual UK Workshop on Computational Intelligence*, UKCI 2005, London, Sep. 2005. *Invited Paper*.
15. Haddadi, H., Mendes Rodrigues, E. and Sacks, L.E. "Development of a Monitoring and Measurement Platform for UKLight High-Capacity Network", in *Proc. of the Postgraduate Research Conference in Electronics, Photonics, Communications and Networks, and Computing Science*, PREP 2005, University of Lancaster, UK, Mar.-Apr. 2005.
16. Haddadi, H., Mendes Rodrigues, E. and Sacks, L.E. "Applications of GridProbe Technology for Traffic Monitoring on High-Capacity Backbone Networks, Data-Link Layer Simulation Approach", in *Proc. of the IEEE Conference on Computer Communications and Networking*, IEEE INFOCOM 2005, Student Workshop, Miami, Florida, USA, Mar. 2005.
17. Mendes Rodrigues, M.E.S. and Sacks, L. "A scalable hierarchical fuzzy clustering algorithm for text mining", in *Proc. of the 4th International Conference on Recent Advances in Soft Computing*, RASC'2004, pp. 269-274, Nottingham, UK, Dec. 2004.
18. Mendes, M.E.S., Jarrett, W., Prnjat, O. and Sacks, L. "Flexible Searching and Browsing for Telecoms Learning Material", in *Proc. of the 2003 International Symposium on Telecommunications*, IST'2003, Isfahan, Iran, Aug. 2003.
19. Mendes, M.E.S. and Sacks, L. "Evaluating fuzzy clustering for relevance-based information access", in *Proc. of the IEEE International Conference on Fuzzy Systems*, FUZZ-IEEE'2003, pp. 648-653, St. Louis, Missouri, USA, May 2003. *Awarded UCL Graduate School Major Award*.
20. Mendes, M.E.S., Martinez, E. and Sacks, L. "Knowledge-based Content Navigation in e-Learning Applications", in *Proc. of the 2002 London Communications Symposium*, LCS'2002, London, UK, Sep. 2002.

21. Sacks, L., Earle, A., Prnjat, O., Jarrett, W. and Mendes, M. "Supporting Variable Pedagogical Models in Network Based Learning Environments", in *Proc. of the IEE 2nd Annual Symposium on Engineering Education: Professional Engineering Scenarios*, vol. 1, pp. 22/1-22/6, London, UK, Jan. 2002.
22. Mendes, M.E.S. and Sacks, L. "From Metadata to Fuzzy Knowledge Representation", *Proc. of the 2001 London Communications Symposium*, LCS'2001, London, UK, Sep. 2001.
23. Mendes, M.E.S. and Sacks, L. "Dynamic Knowledge Representation for e-Learning Applications", in *Proc. of the 2001 BISC International Workshop on Fuzzy Logic and the Internet*, FLINT'2001, Memorandum No. UCB/ERL M01/28, University of California Berkeley, pp. 176-181, Aug. 2001. *Awarded UCL Graduate School Major Award.*
24. Mendes, M.E.S. and Sacks, L. "Assessment of the Performance of Fuzzy Cluster Analysis in the Classification of RFC Documents", in *Proc. of the 2000 London Communications Symposium*, LCS'2000, London, UK, Sep. 2000.
25. Oliveira, J., Carrapatoso, E., Moreira, R. and Mendes, E. "Development of a distributed digital library: from specification to code generation", in *Proc. of the Jornadas de Engenharia de Telecomunicações e Computadores*, JETC'99, Lisbon, Portugal, Oct. 1999.

#### Technical reports:

1. Hansen, D., Rotman, D., Bonsignore, E., Milic-Frayling, N., Mendes Rodrigues, E., Smith, M., Shneiderman, B. "Do You Know the Way to SNA?: A Process Model for Analyzing and Visualizing Social Media Data", *HCI Lab, University of Maryland*, Technical Report no. HCIL-2009-17, 2009.
2. Milic-Frayling, N., Jones, R. and Mendes Rodrigues, E., "User Study of Interconnection among Communication, Authoring, and Information Management Processes", *Microsoft Research*, Technical Report no. MSR-TR-2006-96, Jun. 2006.
3. Mendes Rodrigues, E., Milic-Frayling, N., Hicks M. and Smyth, G. "Link Structure Graphs for Representing and Analyzing Web Sites", *Microsoft Research*, Technical Report no. MSR-TR-2006-94, Jun. 2006.

#### PATENTS

1. Zheleva, E., Guiver, J., Milic-Frayling, N., Mendes Rodrigues, E. Session Based Recommendations in a Collaborative Media Environment. *US Patent Application No.: 12/660,001, Publication No.: US 2010/0185733 A1, Filing date: Feb. 17, 2010.*
2. Milic-Frayling, N., Smyth, G., Mendes Rodrigues, E., Kazai, G. Rich-Context Tagging of Resources. *US Patent Application No.: 12/328,120, Publication No.: US 2010/0146015 A1, Filing date: Dec. 4, 2008.*
3. Milic-Frayling, N., Mendes Rodrigues, E. and Pandit, S. Web Site Structure Analysis and Representation Model. *US Patent Application No.: 11/566,837, Publication No.: US 2008/0134015 A1, Filing date: Dec. 5, 2006.*

#### PROFISSIONAL ACTIVITIES

Member of the Association for Computing Machinery (ACM)

Member of the Institute of Electrical and Electronic Engineers (IEEE)

Member of the Social Media Research Foundation

PC member and reviewer: ACM TIST, Computers & Graphics, KDIR 2011, INTERACT 2011, LUL-AAL 2010, DSIE 2011, KDIR 2010, DSIE 2011, CIKM 2009, EPIA 2009, SemSearch 2009, SemSearch 2008, CIKM 2007.

#### PROGRAMMING SKILLS

Java (Servlet, JAXP, JMF, Swing), C/C++, C#, Perl, WPF/XAML, JavaScript, PHP, ASP .NET, XML, XSL/XSLT, RDF, HTML, VRML, CGI, SQL, SQL Server, Microsoft Access, MySQL, dbXML, MATLAB, L<sup>A</sup>T<sub>E</sub>X.

#### LANGUAGES

Portuguese (native), English (fluent), Spanish (intermediate), French (basic), German (basic).

José Luís Oliveira  
**CURRICULUM VITAE**

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<http://www.ieeta.pt/~jlo>  
<http://bioinformatics.ua.pt/>

**Education**

- PhD in Telecommunications Engineering by University of Aveiro, 1996.
- *Provas de Aptidão Pedagógica e Capacidade Científica (MSc equiv.)*, 1989.
- *Licenciatura* degree (5 years degree) in Telecommunications and Electronic Engineering, by University of Aveiro, 1985.

**Current position**

- Associate Professor in the University of Aveiro.
- Coordinator of the bioinformatics group of University of Aveiro (<http://bioinformatics.ua.pt/>).
- Scientific coordinator of the Bioinformatics unit, at BIOCANT ([www.biocant.pt](http://www.biocant.pt)).

**Major academic and scientific activities**

- Director of DETI (Departamento de Electrónica, Telecomunicações e Informática), University of Aveiro, 2001-2003. Vice-Director of DETI (Departamento de Electrónica, Telecomunicações e Informática), University of Aveiro, 1999-2001, 2005-2007.
- Teaching areas include typically courses on programming paradigms (C, C++, Java, OOP), distributed applications, Internet computing and Information retrieval.
- His main research interests are in the area of distributed systems, information retrieval and computational applications for bioinformatics and biomedical informatics.
- Researcher in 25 projects (100541/FCT, 104428/FCT, Gen2Phen/IST, ALERT/IST, CMU-PT-7/FCT, 72251/FCT, 64745/FCT, 72974/FCT, HFSP, InfoBioMed/IST NoE, EuroNGI/IST NoE, Daidalos/IST, InfoGenMed/IST, LabCompUEM/FCG, 32030/FCT, Proteomica/FCT, IST/PACD, MEU/PACD, DIFFERENCE/ACTS, SIO/PRAXIS, IBCoBN/ACTS, EurIPACS/AIM, IREF/CERN, GRECO/JNICT, TELECOM/PT).
- One patent and several software trademarks.
- Co-editor of *The Open Medical Informatics Journal* (Bentham). Reviewer for *BMC Biotechnology*, *IEEE Transactions on Information Technology in Biomedicine*,

*Human Mutation, IEEE Transactions on Software Engineering, Journal of Network and Systems Management*

- Member of the scientific committee of DILS 2010, CRC2010, IWPACBB2010, IBWAS 2010, BIOINFO 2010, INFORUM 2010, DILS 2009, Secrypt 2009, JB 2009, SINO 2008, TTeC 2008, SINO 2007, IS 2007, CEE 2007, Secrypt 2007, Secrypt 2006, ISBMDA 2006, ISBMDA 2005, SINO 2006, SINO 2005, CEE 2005, JETC2005, SINO 2005, CRC 2005, CEE 2005, CRC 2004, CRC 2003, EurASIA ICT 2002, CRC 2002, CRC 2001, CRC 2000. Scientific chair of ISBMDA 2005.
- Reviewer for ACM SAC 2010, AMIA 2010, IWANN 2009, ACM SACS 2008, MIE 2008, ICSNC 2007, ACM SAC 2007, ConfTele 2005, InCom 2004, ConfTele 2003, ICAR 2003, Qofis 2001, SSGR 2000, WFCS 2000, CRC 99, CRC 98.
- Publications: books (2), book chapters (11), journals (22), Portuguese journals (15), international conferences with referee (126) and communications (25).
- PhD Supervision: 7 completed, 6 ongoing.