

# Curriculum Vitae

## PERSONAL DATA

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NAME: André Carlos Ponce de Leon Ferreira de Carvalho  
NATIONALITY: Brazil  
DATE OF BIRTH: 21//11/1965  
PLACE OF BIRTH: Recife, Brazil  
EMAIL: [andre@icmc.usp.br](mailto:andre@icmc.usp.br)  
WEB SITE: <http://http://www.cemeai.icmc.usp.br>

## PROFESSIONAL EXPERIENCE

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01/03/2010-28/02/2011 | Visiting Professor, University of Kent, Canterbury, UK  
01/10/2006-Now | Full Professor, Computer Science Department, Universidade de São Paulo, São Carlos, Brazil  
01/09/2005-31/08/2006 | Visiting Researcher, Universidade do Porto, Porto, Portugal  
01/01/2000-31/12/2000 | Associate Professor, Computing and Information Science Department, University of Guelph, Guelph, Canada  
01/07/1998-30/09/2006 | Associate Professor, Computer Science Department, Universidade de São Paulo, São Carlos, Brazil  
01/08/1994-30/06/1998 | Assistant Professor, Computer Science Department, Universidade de São Paulo, São Carlos, Brazil

## EDUCATION

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08/1998 | Habilitation (Livre Docencia) in COMPUTER SCIENCE, **Universidade de São Paulo**, São Carlos, Brazil  
09/1990-07/1994 | PhD in ELECTRONICS, **University of Kent**, Canterbury, UK  
Supervisor: Michael C. Fairhurst  
03/1988-07/1990 | MSc in COMPUTER SCIENCE, **Universidade Federal of Pernambuco**, Recife, Brazil  
Supervisor: Clylton G. Fernandes  
03/1984-12/1987 | BSc in COMPUTER SCIENCE, **Universidade Federal of Pernambuco**, Recife, Brazil

## LANGUAGE SKILLS

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ENGLISH: Fluent  
PORTUGUESE: Native  
SPANISH: Intermediate Knowledge

## SCIENTIFIC PRODUCTION INDICATORS

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*ORCID:* <http://orcid.org/0000-0003-3582-9866>  
*ResearcherID:* <http://www.researcherid.com/rid/A-6321-2008>  
*Google Scholar:* <https://scholar.google.com/citations?user=B3L9jQMAAAAJ&hl=en>  
*Linkedin:* <https://www.linkedin.com/in/andre-c-p-l-f-de-carvalho-151bb26>

## SOFTWARE PACKAGES

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*Noise filters:* <https://cran.r-project.org/web/packages/NoiseFiltersR/index.html>  
*Metafeature extraction:* <https://cran.r-project.org/web/packages/mfe/index.html>

## RESEARCH AWARDS

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- Hewlett-Packard Scientific Award 1998 as one of the best five papers in the 20th International Symposium on Capillary Chromatography, Paper title: Chemical Classification of Monoterpenes by Their Mass Spectra Using Artificial Neural Networks of the Multilayer Perceptron Model. Together with Airton Soares, F. Lanças, J. Vilegas, and Roseli Romero. Riva del Garda, Italy 1998.
- Best paper of the Mexican Conference on Artificial Intelligence, with the work: Applying One-sided Selection to Unbalanced Datasets, Lecture Notes of Artificial Intelligence, Springer-Verlag. Together with Gustavo Batista and Maria Carolina Monard. Acapulco, Mexico, 2000.
- Young researcher of the year, Secretary of Science and Technology of Sao Carlos, Brazil, 2000.
- Second best work in the XXV National Meeting of Condensed Material with the work Taste Sensor Based on Conducting Polymers. Together with A. Riul Jr., R. Malmegrin, L. H. C. Mattoso and H. de Souza. Caxambu, Brazil, 2002.
- Best oral paper in the IV National Meeting of Artificial Intelligence, ENIA'2003, Annual Conference of the Brazilian Computer Society. Together with Ronaldo Prati and Maria Carolina Monard. Campinas, Brazil, 2003.
- Supervisor of the 3rd best undergraduate work in the XXIV undergraduate work contest of the Annual Conference of the Brazilian Computer Society. Together with Murilo Naldi. São Leopoldo, Brazil, 2005.
- Best paper award 18th International Conference on Industrial and Engineering Applications of Artificial Intelligence and Expert Systems, IEA/AIE 2005. Together with Giampaolo Libralão and Osvaldo Almeida. Bari, Italy, 2005.
- Supervisor of the 2nd best undergraduate work in the XXV undergraduate work context of the Annual Conference of the Brazilian Computer Society. Together with Bruno Nery, Rodrigo Mello. Campo Grande, Brazil, 2006.
- Supervisor of the 2nd best MSc work in the V Best MSc dissertation/ PhD thesis contest - CTDIA'2006, IBERAMIA'2006. Together Bruno Feres de Souza. Ribeirão Preto, Brazil, 2006.
- Supervisor of the 3rd best PhD work in the VII Best MSc dissertation/ PhD thesis contest - CTDIA'2010, São Bernardo dos Campos, Brazil, 2010, with M. Nascimento and F. Toledo.
- Best paper award in the IGEC+S\*S+SBSE tracks of the Genetic and Evolutionary Computation Conference, GECCO'2012, Philadelphia, USA, 2012, with R. Barros, M. Basgalupp and A. Freitas.

- Best paper award in the 2012 IEEE Conference on System, Man and Cybernetics, IEEE SMC 2012 Seoul, South Korea, 2012, with P. Miranda, R. Prudêncio and C. Soares.
- Jabuti award for the best Brazilian Book in Technology and Informatics 2012, Brazilian Book Board, Sao Paulo, Brazil, 2012, with K. Faceli, A. C. Lorena and J. Gama.
- Best Paper award in the 2012 Brazilian Neural Networks Symposium. SBRN'2012, Curitiba, Brazil, 2012, with A. Rossi and C. Soares.
- Best Student Paper award in the 2013 IEEE Conference on Evolutionary Computation, IEEE CEC'2013, Cancun, Mexico, 2013, with R. Cerri, R. Barros and A. Freitas.
- José Mauro Castilho award for the best paper at the Brazilian Databases Symposium, SBBD 2013. Recife, Brazil, 2013, with T. Covões, R. C. Barros, T. S. da Silva and E. Hruschka
- Best PhD Thesis in Computing, 27<sup>th</sup> Brazilian Contest of PhD Thesis, Brazilian Computer Society, with R. C. Barros and A. Freitas, 2014
- Best Brazilian PhD Thesis in Computing in 2014, CAPES PhD Thesis 2014, Brazilian Ministry of Education, with R. C. Barros and A. Freitas, 2014
- 2nd Best PhD Thesis in Artificial Intelligence, 2014 Brazilian Contest of Artificial Intelligence PhD Thesis, Brazilian Computer Society, with R. Cerri, 2014.
- 2nd Best full paper in the Symposium on Knowledge Discovery, Mining and Learning (KDMiLe 2014) (with Everlândio Fernandes and André Coelho, Sociedade Brasileira de Computação - SBC.
- Journal of Digital Imaging (JDI) Best Paper, Volume 29 (2016), together with Marcos Vinicius Naves Bedo, Davi P. dos Santos, Marcelo Ponciano-Silva, Paulo M. de Azevedo Marques and Caetano Traina Jr., Society for Imaging Informatics in Medicine (SIIM).
- Scientific Merit Award, Special Committees of Computational Intelligence and Artificial Intelligence, Brazilian Computer Society (SBC), 2017.
- Best Brazilian PhD Thesis in Computing in 2017, CAPES PhD Thesis 2017, Brazilian Ministry of Education, with L. P. F. Garcia, 2017

## MOST RELEVANT RECENT PUBLICATIONS

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- Nascimento, M. C., Toledo, F. and de Carvalho, A.: Investigation of a new GRASP-based clustering algorithm applied to biological data. *Computers & Operations Research*, v. 37, p. 1381-1388, 2010.
- Barros R., Freitas, A. and de Carvalho, A.: *Automatic Design of Decision-Tree Induction Algorithms*. 1. Ed. Springer, 2015.
- Faceli, K., Souto, M., Araújo D. and de Carvalho A.: Multi-objective Clustering Ensemble for Gene Expression Data Analysis. *Neurocomputing*, v. 72, n. 13-15, p. 2763-2774, 2009.
- Naldi, M., de Carvalho, A. and Campello, R.: Cluster ensemble selection based on relative validity indexes. *Data Mining and Knowledge Discovery*, v. 27, p. 259-289, 2013.
- Rossi, A., de Carvalho, A. Soares, C. and de Sousa, B.: MetaStream: a meta-learning based method for periodic algorithm selection in time-changing data. *Neurocomputing (Amsterdam)*, v. 127, p. 52-64, 2014.
- Barros, R., Basgalupp, M., Freitas, A., de Carvalho, A.: Evolutionary Design of Decision-Tree Algorithms Tailored to Microarray Gene Expression Data Sets. *IEEE Transactions on Evolutionary Computation*, v. 18, p. 873-892, 2014.
- Lopes, I., Schliep, A. and de Carvalho, A.: The discriminant power of RNA features for pre-miRNA recognition. *BMC Bioinformatics* 15, 124, 2014.

- Garcia, L. P., de Carvalho, A., Lorena, A. and Matwin, S.: Ensembles of label noise filters: a ranking approach. *Data Min. Knowl. Discov.* 30(5): 1192-1216, 2016.
- Faria, E., de Carvalho, A., Gama, J.: MINAS: multiclass learning algorithm for novelty detection in data streams. *Data Mining and Knowledge Discovery*, v. 30, p. 640-680, 2016.
- Máximo, V., Nascimento, M., and de Carvalho, A.: Intelligent-guided adaptive search for the maximum covering location problem. *Computers & Operations Research*, v. 78, p. 129-137, 2017.

## CURRENT GRANTS AND SCHOLARSHIPS

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|                 |                                                                                                                                                                                   |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 06/2017-03/2019 | FAU-FAPESP International Collaboration, Brazil                                                                                                                                    |
| 06/2017-05/2020 | CNPq Universal Project, Coordinator, Brazil                                                                                                                                       |
| 06/2017-05/2019 | FAPESP-IBM on Cognitive Intelligence Project, Coordinator, Brazil                                                                                                                 |
| 03/2016-02/2021 | CNPq Productivity Research Grant Level 1A, Brazil                                                                                                                                 |
| 01/2015-12/2018 | CAPES-COFECUB with University of Orleans, France, Coordinator, Brazil                                                                                                             |
| 06/2012-05/2018 | FAPESP-CEPID - Centro de Ciências Matemáticas Aplicadas a Industria - CEPID-Cemeai Project, Principal Investigator, Brazil                                                        |
| 09/2018-08/2023 | FAPESP-Thematic - DéjàVu: Feature-Space-Time Coherence from Heterogeneous Data for Media Integrity Analytics and Interpretation of Events Project, Associate Investigator, Brazil |
| 08/2018-08/2023 | FAPESP-Shell - Computational Material Science and Chemistry, Associate Investigator, Brazil                                                                                       |

## ACADEMIC INDICATORS

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|----------------------------------------|------------------------------------------------------------|
| <i>Books:</i>                          | 4                                                          |
| <i>Indexed journal papers:</i>         | 134                                                        |
| <i>Book chapters:</i>                  | 23                                                         |
| <i>Conference papers:</i>              | 292                                                        |
| <i>MSc supervisions:</i>               | 25 concluded (1 as co-supervisor) and 2 under supervision  |
| <i>PhD supervisions:</i>               | 29 concluded (8 as co-supervisor) and 12 under supervision |
| <i>Post-doctorate supervisions:</i>    | 20 concluded and 3 under supervision                       |
| <i>PhD exam committees:</i>            | 144                                                        |
| <i>Habilitation exam committees:</i>   | 22                                                         |
| <i>Full Professor exam committees:</i> | 13                                                         |

## SUPERVISIONS

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### 11.1 PhD Supervisions

#### 11.1.1 Concluded

- Werner Siegfried Hanisch, Desenvolvimento de Modelos Mecânico e Neural para o Processo de Lodos Ativados de Tratamento de Esgotos Domésticos (Development

of Mechanist and Neural Models for the Activated Sludge Process Treating Domestic Sewage), São Carlos Engineering School -University of São Paulo, 1999 (as co-supervisor, the supervisor was Prof. Eduardo Pires from São Carlos Engineering School -University of São Paulo, Brazil). Currently, Assistant Professor at Universidade Federal de São Paulo.

- Ricardo Barz Sovat, Combinando Redes Neurais Artificiais e Raciocínio Baseado em Casos (Combining Artificial Neural Networks and Case-Based Reasoning), ICMC-USP, Brazil, 2002. Currently, Assistant Professor at Instituto Federal de Educação, Ciência e Tecnologia de São Paulo.
- Alexandre Botazzo Delben, Algoritmos Genéticos Híbridos para o Planejamento de Sistemas Hidroelétricos (Energy Restoration Using Genetic Algorithms), São Carlos Engineering School, USP, Brazil, 2002 (as co-supervision, the supervisor was Prof. Newton Bretas from São Carlos Engineering School-University of São Paulo, Brazil). Currently, Full Professor at Universidade de São Paulo
- Estéfane George Lacerda, Model Selection of RBF Networks via Genetic Algorithms, Center of Informatics - Federal University of Pernambuco, 2003 (as co-supervisor, the supervisor was Prof. Teresa Ludermir, Center of Informatics - Federal University of Pernambuco, Brazil). Currently, Researcher at Universidade Federal do Rio Grande do Norte.
- Cláudia Regina Milaré, Extração de Conhecimento de Redes Neurais (Knowledge Extraction from Neural Networks), ICMC-USP, Brazil, 2003. Currently, Assistant Professor at Centro Universitário das Faculdades Associadas de Ensino
- Antonio Valério Neto, Processamento e Análise de Imagens para Medição de Vícios de Refração Ocular (Image Processing and Analysis to Measure Ocular Refractive Vicious), ICMC-USP, Brazil, 2003 (as co-supervisor, the supervisor was Dr. Maria Cristina Ferreira de Oliveira, ICMC / Universidade de São Paulo P, Brazil).
- Patricia Leite Teixeira, Algoritmos Genéticos Híbridos para o Planejamento de Sistemas Hidroelétricos (Hybrid Genetic Algorithms for Hydroelectric Systems Planning), EESC/ Universidade de São Paulo, Brazil, 2003 (as co-supervisor, the supervisor was Dr Adriano França from São Carlos Engineering School-University of São Paulo, Brazil). Currently, Assistant Professor at Federal University of ABC.
- Ana Carolina Lorena, Investigação de Estratégias para Geração de Máquinas de Vetores de Suporte Classification Multiclasses (Investigation of Strategies for the Generation of Multiclass Support Vector Machines), ICMC-USP, 2006. Currently, Associate Professor at Federal University of São Paulo.
- Katti Faceli, Combinação de clusters para Análise de Expressão Gênica (Cluster Ensemble for Gene Expression Analysis), ICMC-USP, 2006. Currently, Assistant Professor at Federal University of São Carlos.
- Eduardo Spinola, Detecção de Novidade com Aplicação a Fluxos Contínuos de Dados (Novelty Detection with Application to Data Streams), ICMC-USP, 2008. Currently, Assistant Professor at Federal University of Paraná.
- Luiz Carlos G. Lopes, Aplicação de algoritmos genéticos híbridos na resolução de problemas numéricos (Applying Hybrid Genetic Algorithms to Solve Numerical problems), Universidade da Madeira, Portugal, 2008. Currently, Associate Professor at Universidade da Madeira, Portugal.
- Rodrigo Bianchi, Extração de Conhecimento de Classificadores de Margens Largas Aplicadas à Análise de Expressão Gênica (Knowledge Extraction from Large Margin for Gene Expression Analysis), ICMC-USP, Brazil, 2008. Currently, Assistant Professor at Federal Institute of São Paulo.

- Débora Medeiros, Gene Semi-supervised Clustering Using Text Mining, ICMC-USP, Brazil, 2010. Currently, Assistant Professor at Federal University of ABC.
- Bruno Feres de Souza, Using Meta-Learning and Bioinspired Algorithms for Parameters Tuning. ICMC-USP, 2010. Currently, Assistant Professor at Federal University of Maranhão.
- Marcio Basgalupp, Induction of decision trees for classification using Evolutionary Computation, ICMC-USP, 2010. Currently, Assistant Professor at Federal University of São Paulo.
- Mariá Cristina Vasconcelos Nascimento, Metaheuristics for the graph clustering problem (co-supervised by Dr Franklina Toledo), ICMC-USP, 2010. Currently, Assistant Professor at Federal University of São Paulo.
- Sabrina de Oliveira. Análise do efeito proliferativo da desintegrina Alternagina-C (ALT-C) em células precursoras endoteliais por técnicas proteômicas, Biotechnology, Universidade Federal de São Carlos, (as co-supervisor, the supervisor was Heloisa Sobreiro Selistre de Araújo, Federal University of São Carlos, UFSCar, Brazil).
- Jorge Kanda, Meta-aprendizado em Otimização, Meta-learning for Optimization, ICMC-USP, 2011, Grant from FAPEAM. Currently, Assistant Professor at Universidade Federal do Amazonas.
- José Augusto de Andrade, Attribute Selections for Clustering in Bioinformatics, ICMC-USP, July 2013, Grant from CNPq, Currently Assistant Professor Instituto Federal de Sergipe, Brazil.
- André Rossi, Meta-learning for Data streams, ICMC-USP, 2013, Grant from FAPESP. Currently, Assistant Professor in the UNESP, Campus of Itapeva, Brazil.
- Rosane Vallim Maffei, machine learning for data streams in computer games, ICMC-USP, May 2013, Grant from FAPESP, Currently at Microsoft Research.
- Ricardo Cerri, Hierarchical end multilabel classification, since March 2010, Grant from FAPESP. Currently, Assistant Professor in the Universidade Federal de São Carlos, São Carlos Campus, Brazil.
- Rodrigo Coelho Barros: Evolving tree induction algorithms by evolutionary programming, December 2013, Grant from FAPESP. Currently, Assistant Professor PUC Rio Grande do Sul, Brazil.
- Elaine Ribeiro de Faria, Novelty detection using clustering algorithms, June 2014. Currently, Assistant Professor in the Universidade Federal de Uberlândia, Brazil.
- Ivani de Oliveira Negrão Lopes, Semi-supervised learning for microRNA detection, June 2014. Currently, Researcher in the Embrapa Soja, Brazil.
- Davi Pereira dos Santos, Using ensembles for novelty detection, April 2016.
- Luis Paulo Faina Garcia, Data pre-processing by noise detection, June 2016. Currently, Postdoc at University of Leipzig, Germany.
- Paulo Henrique Pisani, Biometrics in a Data Stream Context. March 2017. Currently, Postdoc at UNICAMP.

#### 11.1.2 Current

- Isabel J.C. Ribeiro Gonçalves. Multiclass Novelty Detection in Data Streams, Universidade do Porto, Portugal, since 08/2012

- Rafael Mantovani, Using Metalearning for parameter tuning, Universidade de São Paulo, Brazil, FAPESP grant, since 03/2013
- Paulo Henrique Pisani, Novelty Detection in Biometric Data, Universidade de São Paulo, Brazil, FAPESP grant, since 03/2013
- Everlândio Rebouças Queiroz Fernandes, Ensemble of classifiers for imbalanced multi-class classification tasks, Universidade de São Paulo, Brazil, FAPESP grant, since 08/2013
- Kelly Cristina Ramos da Silva. Clustering for anomaly detection. CAPES grant, since 03/2014
- Giovana Gellatti. Anomaly detection in clinical data, CAPES grant, since 07/2014
- Kemilly Dearo Garcia, Unsupervised novelty detection, CAPES grant, since 03/2015
- Adriano Rívoli da Silva, Metalearning for multilabel classification, since 03/2015
- Victor Barella, Integrated data processing, FAPESP grant, since 03/2016
- Douglas Castilho, Deep Learning for time series classification, since 03/2016
- Everton Silva, Ensembles for Time Series Analysis CAPES grant, since 03/2016,
- Tiago Cunha. Metalearning for Recommender Systems, Universidade do Porto, Portugal, since 08/2016

## 11.2 Post-Doctorate Supervisions

### 11.2.1 Concluded

- Alexandre Cláudio Botazzo Delbem, Using Evolutionary Computation in Bioinformatics, from 04/2002 to 02/2003, Grant from CNPq (Currently, Full Professor Universidade de São Paulo)
- Márcilio Carlos Pereira Souto, Computability of Hybrid Neural Networks, from 08/2002 to 09/2003, Grant from FAPESP (Currently, Full Professor University of Orleans, France)
- Renato Tinos, Temporal Genetic Algorithms, from 03/2003 to 03/2004, Grant from CNPq (Currently, Associate Professor Universidade de São Paulo)
- Arthur Plínio de Sousa Braga, Fault Detection in Engines, from 06/2004 to 04/2005, Grant from CNPq and FAPESP (Currently, Associate Professor Universidade Federal do Ceará)
- Ana Carolina Lorena, Multiclass Classification, from 10/2006 to 09/2007, Grant from CNPq (Currently, Associate Professor Universidade Federal de São Paulo)
- Katti Faceli, Ensemble of Clustering Techniques, from 11/2006 to 12/2007, Grant from FAPESP (Currently, Assistant Professor Universidade Federal de São Carlos)
- Antônio Nilder, Data Mining for Credit Analysis, from 03/2007 to 12/2007, Grant from Northeast Brazilian Bank
- Daniel Luís Barreiro, Music Composition by Genetic Algorithms, from 06/2008 to 10/2008, Grant from CNPq (Currently, Assistant Professor Universidade Federal de Uberlândia)
- Cláudia Milaré, from 03/2009 to 01/2011, Grant from CNPq (Currently, Assistant Professor Centro Universitário São João da Boa Vista)
- Bruno Feres de Souza, from 10/2010 to 10/2012, Grant from CNPq (Currently, Assistant Professor Universidade Federal do Maranhão)

- Tiago Silva das Silva, from 05/2012 to 11/2013, Grant from CNPq and FAPESP (Currently, Assistant Professor Universidade Federal de São Paulo)
- Eduardo Costa, from 12/2013 to 12/2014, Grant from CAPES (Currently, Chef Scientist Dow Chemistry, Cravinhos )
- Soledad Espezua, from 01/2014 to 08/2016, Grants from CNPq and CAPES (Currently, Substitute Professor Catholic University of Lima)
- Edwin Villanueva, from 01/2014 to 10/2016, Grants from FAPESP and CNPq (Currently, Assistant Professor Catholic University of Lima)
- Tomas Horvath, from 08/2015 to 09/2016, Grant from CAPES (Currently, Head of Data Science and Engineering Department at ELTE Faculty of Informatics, Hungary)
- Carlos Affonso, Without grant, from 03/2015 to 02/2017, (Currently Assistant Professor Universidade Estadual Paulista)
- Luis Paulo Garcia Faina, Grant from CNPq, from 09/2016 to 03/2017, (Currently Postdoctorate Department of Computer Science, University of Leipzig, Germany)
- Isvani Frias-Bloanco, from 08/2015 to 07/2017, Grant from FAPESP (Currently, Data Scientist LexisNexis Risk Solutions)
- Humberto Brandão, since 09/2016, Grant from CAPES (Currently, Assistant Professor Universidade Federal de Alenas)
- Paulo Pisani, since 04/2017, Without grant (Currently Post-doctorate, Universidade Campinas, Unicamp).

### 11.2.2 Current

- Tiago Botari, since 07/2017, Grant from FAPESP
- Luciano de Carli Moreira de Andrade, since 08/2017, Grant from FAPESP
- Bruno Almeida Pimentel, since 10/2017, Grant from FAPESP

## OTHER RELEVANT INFORMATION

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- Member of the International Association for Statistical Computing (IASC), 2013-2017.
- Head of Dept. Computer Sciences, ICMC-USP, 10/2008 to 02/2010 and from 03/2014 to 02/2016.
- Vice-Director of Center of Mathematics, Statistics and Computing for Industry, Universidade de São Paulo, since 08/2017.
- Director of NAP AMDA (Machine Learning in Data Analysis), Universidade de São Paulo. from 01/2012 to 10/2017.
- Member of the Latin American and Caribbean chapter of the International Network for Government Science Advice (INGSA)
- Vice President of ICMC-USP International Relation Committee, 2012-2014 and since 08/2016.
- Editorial Board of Journals: Engineering Applications of Artificial Intelligence (Elsevier), International Journal of Bio-inspired Computation (Inderscience), Intelligent Data Analysis (IOS Press) and Editorial Board of Bioinformatics and Computational Biology (specialty section of Frontiers in Bioengineering and Biotechnology, Frontiers in Genetics and Frontiers in Plant Science), as Review Editor.



- Has been on the Program Committee of the following Conferences: AAAI, Bracis, DSAA, ECML-PKDD, EPIA, KDD, KDMiLe, IJCAI, LION, SBBB, SBPO, SDM.

## TUTORIALS AND INVITED TALKS

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### 13.1 Tutorials and Invited Talks

- Designing Neural Networks for Credit Analysis, International Joint Conference on Neural Networks, IJCNN'99, Washington, USA, July 1999
- Hybrid Intelligent Systems, Argentine Symposium on Artificial Intelligence, ASAI 2001, Argentine Conference on Computer Science and Operational Research, 30 JAIO - 2001, Buenos Aires, Argentina, September 2001.
- Inteligência Artificial (in Portuguese) – Artificial Intelligence, I Brazilian School on Artificial Intelligence and Bioinformatics, São Carlos, Brazil, December 2001.
- Hybrid Intelligent Systems, Congreso Latino Americano de Sistemas, Informatica, Telematica, Electronica y Computacion, CLASSITEC'2002, Arequipa, Peru, July 2002.
- AI and Bioinformatics, Summer School, University of Burgos, Spain, July 2003.
- Técnicas de Aprendizado de Máquina em Problemas de Biologia Molecular (in Portuguese) – Machine Learning Techniques in Problems of Molecular Biology, XXI Brazilian Congress on Computer, SBC'2003, Campinas, Brazil, August 2003 (with M. Souto, Lorena, A., Delbem, A.).
- Ana Lúcia Bazzan and André Carvalho: Computational Intelligence, II Brazilian Workshop on Bioinformatics, WOB 2003, Macaé, Brazil, December 2003. (with Delbem, A., G. Telles, E. Simões and R. Romero).
- Computação Bioinspirada (in Portuguese) – Bioinspired Computing, XXII Brazilian Congress on Computer, SBC'2004, Salvador, Brazil, August 2004.
- Datamining in Bioinformatics, Norwegian University of Science and Technology, Trondheim, Norway, September, 2004.
- Bioinspired Machine Learning, XVI European Conference on Machine Learning (ECML'05) – Porto, Portugal – October 2005.
- Bioinspired Intelligent Systems, VI Hybrid Intelligent Systems (HIS'06)– Auckland, New Zealand – December 2006.
- Datamining in Bioinformatics VII International Conference on Intelligent Systems Analysis, (ISDA'07) – Rio de Janeiro, Brazil – October 2007. With (Faceli, K. and Lorena, A. C.).
- Datamining in Bioinformatics Brazilian School on Bioinformatics – Santo Andre, Brazil – August 2008. (with André Carvalho, Faceli, K. and Lorena, A. C.).
- Datamining in Bioinformatics, Workshop Brazil-France – Recife, Brazil – October 2009.
- Evolutionary Algorithms for Clustering, 4th Hybrid Artificial Intelligent Systems Workshop (HAIS'09), Salamanca, Spain, June 2009. (with Eduardo Hruschka, Ricardo Campello).
- Datamining in Bioinformatics, Part of the course "Técnicas de biologia molecular aplicadas à produção animal", funded by CBAB/CABBIO– São Carlos, Brazil – July 2009.
- Meta-aprendizado (in Portuguese) – Meta-learning, XXII Brazilian Congress on Computer, SBC'2011, Natal, Brazil, 6 hours, August 2011. (with Bruno Feres de Souza, Ricardo Prudêncio).

- Metalearning, 13th Argentine Symposium on Artificial Intelligence (ASAI 2012), La Plata, Argentina, 5 hours, August 2012.
- Introduction to Machine Learning. 4th Symposium on Knowledge Discovery, Mining and Learning (KDMiLe), Petropolis, Brazil, October, 13th 2015.
- Big Data Stream Mining. ECML-PKDD Summer School on Data Sciences for Big Data - Resource Aware Data Mining, Porto, Portugal, September 3th, 2015. (with Gama, João; Bifet, A.).
- Machine Learning. Motorola Research & Development, Campinas, Brazil, January, 29th 2016.
- Big Data and Data Science: brothers, yes, twins, no. ENIAC 2017, Uberlândia, Brazil, October 3rd, 2017.

### 13.2 Invited Talks

- Hybrid Neural Networks, Computing and Information Science Department, University of Guelph, Canada, March 1999.
- Applying Machine Learning to Problems in Molecular Biology, LORIA, Nancy, France, July 2003.
- Utilização de Inteligência Artificial em Bioinformática (in Portuguese) – Using Artificial Intelligence in Bioinformatics, Universidade da Madeira, Funchal, Portugal, July 2003.
- Classificação de Tumores Utilizando Inteligência Artificial (in Portuguese) – Tumor Classification Using Artificial Intelligence, Hemocentro Foundation, Ribeirão Preto, Brazil, October 2003.
- Applying Artificial Intelligence Techniques to Bioinformatics, University of Newcastle, Newcastle, Australia, December 2003.
- Applications of Artificial Intelligence in Bioinformatics, Griffith University, Gold Coast, Australia, December 2003
- Using Machine Learning to solve problems from Molecular Biology, Uppsala, University, Uppsala, Sweden, March 2004
- Datamining, Norwegian University of Science and Technology, Trondheim, Norway, September 2004.
- Using Machine Learning in Bioinformatics, University of Porto, Porto, Portugal, February 2005.
- Optimization Techniques based on Biology, Universidade de Aveiro, Portugal, April 2006.
- Artificial Intelligence and Bioinformatics, Central Queensland University (CQU) Rockhampton, Australia, November 2007.
- Bioinspired Machine Learning, The Hong Kong Polytechnic University, Hong Kong, June, 2008.
- Non-Trivial Classification Problems, Brain Inspired Cognitive Systems (BISC'2008), São Luís, Brazil, June 2008.
- Advanced Classification Problems, Computer Engineering Department, University of Alberta, Canada, September, 2009.
- Meta-learning for Bioinformatics, Functional Genomics Group, University of Regensburg, Germany, October 2010.

- Using Metalearning for Technique Recommendation, World Congress on Information and Communication Technologies (WICT 2011), Mumbai, India, December 2011
- Technique recommendation using Metalearning, 13th International Conference on Intelligent Data Engineering and Automated Learning (IDEAL), Natal, Brazil, 2012.
- Algorithm recommendation using metalearning, University of Regensburg, Germany, 2013.
- Non-Trivial Classification Problems, Universidade do Porto, Portugal, 2013.
- Non-Trivial Classification Problems, IBM Research Center, Brazil, 2014.
- Challenging classification tasks, Hybrid Artificial Intelligence Systems (HAIS) Conference, Spain, 2014.
- Challenging Machine Learning classification tasks, Universitet of Orlean, France, July, 2014.
- A change is gonna come, University of Regensburg, Germany, 2014.
- Using autonomous UAVs for precision agriculture, Universidade do Porto, Portugal, 2015.
- Autonomous UAVs for pesticide application to crop fields, Montpellier Laboratory of Informatics, Robotics and Microelectronics (LIRMM), 2015
- Participation in a debate about the Artificial Intelligence movie Ex-machina, directed by Alex Garland, Instituto Moreira Salles (IMS) and Academia Brasileira de Ciencias (Brazilian Academy of Sciences) to celebrate 100 years of the Academia Brasileira de Ciências (Brazilian Academy of Sciences), Instituto Moreira Salles, Rio de Janeiro, Brazil, April 22nd 2016.
- The use of autonomous UAVs to improve pesticide application in crop fields. Workshop Mobile Data Mining, Porto, Portugal, June 13th 2016.
- Recommending techniques using metalearning, Universitet of Orlean, France, December 2016.
- Auto-ML: Automating Machine Learning, Department of Mathematics, Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany, June 2017.
- Data Science and Big Data: Brother, yes, twins, no, Brazilian Artificial Intelligence Meeting, Uberlandia, Brazil, October 2017.
- Data Science and Big Data, Serasa Experian, São Carlos, Brazil, October 2017.

## PREVIOUS RESEARCH GRANTS

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- CNPq, Postcode Recognition using Neural Networks, 1995
- FAPESP, Hybrid Environment for Machine Learning, 1996
- CNPq, Neural Networks and Bioinformatics, 2002
- FAPESP, Human Cancer Clinical Genomics, 2002
- CNPq, Genoma Shrimp EST - Bioinformatics coordinator, 2003
- CNPq, Bioinformatics using Machine Learning, 2003
- CNPq, Gene Expression Analysis Using Machine Learning, 2003
- CNPq Universal Grant, Advanced Classification Techniques, 2006
- CAPES, Research Cooperation Between Brazilian Institutions, 200

- CNPq Universal Grant, Machine Learning for Bioinformatics, 2008
- CAPES, Research Cooperation Between University de Sao Paulo and University of Porto, Portugal, 2009
- CNPq Universal Grant, Meta Learning and Data Streams, 2010
- CNPq, Research Cooperation Between University de Sao Paulo and University of Rosario, Argentine, 2011
- CNPq Universal Grant, Advanced Data Mining, 2012
- USP, Research Cooperation between University of São Paulo and University of Salamanca, Spain 2012

## TEACHING EXPERIENCE

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### 15.1 Undergraduate Courses

- Artificial intelligence
- Programming languages
- Data structure
- Entrepreneurship
- Machine learning
- Data mining in biology
- Neural networks

### 15.2 Graduate Courses

- Artificial intelligence
- Data science
- Machine learning
- Data mining
- Neural networks

## INTERNATIONAL COLLABORATIONS

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- Arizona State University, USA
- Auckland University of Technology, New Zealand
- Central Queensland University, Australia
- Eindhoven University of Technology (TU/e), Netherlands
- Institut national de recherche en sciences et technologies pour l'environnement et l'agriculture, France
- Rutgers University, USA
- University of Alberta, Canada
- University of Kent, UK
- University of Leiden, Netherlands

- University of Surrey, UK
- Universidade do Porto, Portugal
- Universidade de Rosario, Argentina
- University of Orleans, France
- University of Montpellier, France

## FULL PUBLICATION LIST

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### 17.1 Books

- Braga, A., de Carvalho, A. C. P. F. and Ludermir, T.: Fundamentos de Redes Neurais (in Portuguese) (translation: Neural Networks Foundations). Published by COPPE/UFRJ for the XI Brazilian Computing School, Rio de Janeiro, Brazil, 246 pages, 1998.
- Braga, A., Ludermir, T. and de Carvalho, A. C. P. F.: Redes Neurais Artificiais: Teoria e Aplicações (in Portuguese) (translation: Artificial Neural Networks: Theory and Applications). ISBN 9788521612184. Published by LTC Press, Rio de Janeiro, Brazil, 262 pages, 2000 (Update and extension of the previous book).
- Braga, A., de Carvalho, A. C. P. F. and Ludermir, T.: Redes Neurais Artificiais: Teoria e Aplicações (in Portuguese) (translation: Artificial Neural Networks: Theory and Applications). ISBN 9788521615644. Published by LTC Press, Rio de Janeiro, Brazil, 226 pages, 2007 (Second edition - update and extension of the previous book).
- Faceli, K., Lorena, A. C., Gama, J. and de Carvalho, A. C. P. F.: Inteligência Artificial Uma abordagem de Aprendizado de Máquina (translation: Artificial Intelligence: A Machine Learning Approach), ISBN 9788521618805. Published by Editora LTC, GEN - Grupo Editorial Nacional, Rio de Janeiro, Brazil, 2011, 378 pages, 2011. (Best book on Science and Engineering, Jabuti award) Gama, J., de Carvalho, A. C. P. L. F., Faceli, K., Lorena, A. C. and OLIVEIRA, M. . Extração de Conhecimento de Dados: Data Mining (Data Knowledge Extraction: Data Mining. 1. ed. Lisboa: Edições Sílabo, 2012. 340 pages.
- Barros, R., Freitas, A. and de Carvalho, A. C. P. F.: Automatic Design of Decision-Tree Induction Algorithms. 1. ed. Hamburgo: Springer, 2015. 176 pages. Gama, J., de Carvalho, A. C. P. L. F., Faceli, K., Lorena, A. C. and OLIVEIRA, M. . Extração de Conhecimento de Dados: Data Mining (Data Knowledge Extraction: Data Mining. Edições Sílabo, 2. ed. Lisboa, Portugal, 428 pages, 2015 (Second edition - update and extension of the previous book).
- de Carvalho, A. C. P. F. and Lorena, A.: Introdução à Computação: Hardware, Software e Dados: Introduction to Computing: Hardware, Software and Data. LTC - Grupo Gen, 1. ed., Rio de Janeiro, Brazil 200 pages, 2016.

### 17.2 Journals

- de Carvalho, A., Fairhurst, M. and Bisset, D. L.: Classifying Images Using Goal Seeking Neural Network Architectures. IEE Proceedings-I Communications, Speech and Vision, Vol. 140, N. 1, pp 12-18, February 1993. ISSN: 1350-2425
- de Carvalho, A., Fairhurst, M. and Bisset, D. L.: A Progressive Learning Algorithm for GSN Feedforward Neural Architectures. IEE Electronic Letters, Vol. 30, Num. 6, pp 506-507, March 1994. ISSN 0013-5194

- de Carvalho, A., Fairhurst, M. and Bisset, D. L.: An Integrated Boolean Neural Network for Pattern Classification. *Pattern Recognition Letters*, Vol. 15, pp 807-813, August 1994. ISSN: 0167-8655
- de Carvalho, A., Fairhurst, M. and Bisset, D. L.: Combining Boolean Neural Architectures for Image Recognition. *Connection Science*, Vol. 9, No. 4, pp 405-418, December 1997. ISSN 0954-0091
- de Carvalho, A. and Fairhurst, M.: Applying Adaptive Logic Networks to Character Recognition. *Pattern Recognition Letters*, Vol. 19, No. 5-6, pp 469-473, North-Holland, April 1998. ISSN: 0167-8655
- Delbem, A. C. B., Bretas, N. G. and de Carvalho, A.: Energy Restoration in Distribution Systems Using Search with fuzzy heuristics. *Engineering Intelligent Systems for Electrical Engineering and Communications (now Engineering Intelligent Systems)*, Vol. 6, No. 4, pp 29-37, CRL Publishing Ltd., December 1998. ISSN 1472-8915
- Ludermir, T., de Carvalho, A., Braga, A. and M. Souto: Weightless Neural Models: a review of current and past work. *Journal Neural Computing Surveys*, pp 41-61, volume 2, 1999. ISSN 1093-7609. <http://www.icsi.berkeley.edu/jagota/NCS/>
- Nobre, C., Martineli, E., Braga, A., de Carvalho, A., Rezende, S., Braga, J. and Ludermir, T.: Knowledge extraction: a comparison between symbolic and connectionist methods. *International Journal of Neural Systems*. Vol. 9, No. 3, pp 257-264, World Scientific Press. October 1999. ISSN: 0129-0657.
- Carvalho, A. and Brizotti, M.: Combining RBF Networks Trained with Different Clustering Techniques, *Journal Neural Processing Letters*, Vol. 14, pp 227-240, Kluwer Academic Publishers, December 2001. ISSN: 1370-4621.
- Lacerda, E., Carvalho, A. and Ludermir, T.: Evolutionary Design of Radial Basis Function Networks, *International Journal of Neural Systems*, Vol. 11, No. 3, pp 287-294, World Scientific Press, June 2001. ISSN: 0129-0657,
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- Milaré, C. R., Carvalho, A. and M. C. Monard: An Approach to Explain Neural Networks using Symbolic Algorithms. *International Journal of Computational Intelligence and Applications*, Vol. 2, No. 4, pp 365-376, December 2002. ISSN: 1469-0268
- Lacerda, E. G. M., A. P. L. F. de Carvalho and Ludermir, T.: Model Selection via Genetic Algorithms for RBF Networks. *Journal of Intelligent & Fuzzy Systems*, Vol. 13, NO. 2-4, pp 111-122, IOS Press, 2003. ISSN 1064-1246.
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