Resume
(June, 2023)

Ricardo J. G. B. Campello

Professor – Computer Science | Data Science

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EDUCATION

- **Ph.D.** degree in Electrical and Computer Engineering from the School of Electrical and Computer Engineering of the State University of Campinas (FEEC/Unicamp), Campinas/SP, Brazil, **2002**

- **MSc** degree in Electrical and Computer Engineering from the School of Electrical and Computer Engineering of the State University of Campinas (FEEC/Unicamp), Campinas/SP, Brazil, **1997**

- **BSc** degree in Electronics Engineering, State University of São Paulo (Unesp), Ilha Solteira/SP, Brazil, **1994**

EMPLOYMENT HISTORY

- **2023 – <u>Current</u>**: Full Professor at the Department of Mathematics and Computer Science, Discipline of Computer Science / Data Science, University of Southern Denmark (SDU), Odense, Denmark

- **2022**: Visiting Academic Guest, School of Computing and Information Systems, University of Melbourne (CIS/UniMelb), Melbourne, VIC, Australia (*honorary, non-remunerated position*)

- **2018 – 2022**: Full Professor at the School of Information and Physical Sciences, Discipline of Statistics / Data Science, University of Newcastle (UON), Newcastle, NSW, Australia

- **2018 – <u>Current</u>**: Adjunct Professor at the College of Science and Engineering, James Cook University (JCU), Townsville, QLD, Australia (*honorary, non-remunerated position*)

- **2017 – 2023**: Adjunct Professor at the Department of Computing Science, University of Alberta (CS/UoA), Edmonton/AB, Canada (*honorary, non-remunerated position*)

- **2016 – 2018**: Full Professor at the College of Science and Engineering, Discipline of Applied Mathematics and Statistics, James Cook University (JCU), Townsville, QLD, Australia

- **2011 – 2016:** Associate Professor at the Institute of Mathematics and Computer Science of the University of São Paulo ([ICMC/USP](#)) at São Carlos/SP, Brazil (tenured position in comp. science)

- **2011 – 2013**: Visiting Professor at the Department of Computing Science of the University of Alberta ([CS/UoA](#)), Edmonton/AB, Canada (*on extended sabbatical leave from Univ. of São Paulo*)

- **2007 – 2011**: Assistant Professor at the Institute of Mathematics and Computer Science of the University of São Paulo ([ICMC/USP](#)) at São Carlos/SP, Brazil (tenured position in comp. science)

- **2005 – 2022**: Merit Scholar / Research Fellow of the Brazilian National Research Council ([CNPq](#))

- **2003 – 2006**: Guest Lecturer and Research Associate at the School of Electrical and Computer Engineering of the State University of Campinas ([FEEC/Unicamp](#)), Campinas/SP, Brazil (*honorary, non-remunerated position*)

- **2003 – 2006**: Assistant Professor at the Graduate Program in Informatics of the Catholic University of Santos ([UniSantos](#)), Santos/SP, Brazil

- **2002 – 2003**: Post-Doctoral Fellow at the Laboratory of Informatics, Signals, and Systems (Lab. D'Informatique, Signaux et Systèmes) of Sophia-Antipolis ([I3S](#)), University of Nice, France

- **1997 – 1998**: Research Assistant, School of Electrical and Computer Engineering of the State University of Campinas ([FEEC/Unicamp](#)), Campinas/SP, Brazil – industry/university project in partnership with multinational **Whirpool corp.** (**Multibrás S/A** in Brazil)

CURRICULUM DESIGN / PROGRAM ESTABLISHMENT

I was co-responsible for the development of three new postgraduate programs in Australia:

- **Master of Data Science (online) – University of Newcastle – Australia:**

  - I was the main responsible for the curriculum design and development of the program, offered in fully online mode from Aug/2019 (https://www.newcastle.edu.au/degrees/master-data-science)

  - I also served as Program Convenor/Coordinator for this master program since its establishment in Dec/2018, until April/2021

- **Double Degree Program "Master of Business Administration (MBA) / Master of Science (Data Analytics)" – University of Newcastle – Australia:**

  - I was the main responsible for the curriculum design and development of the program, offered from May/2020 (www.newcastle.edu.au/degrees/master-business-administration-global-science-data-analytics)

  - I also served as Program Co-Convenor/Co-Coordinator for this combined master program since its establishment in Aug/2019, until April/2021

- **Master of Data Science (online) – James Cook University – Australia:**

  - I was co-responsible for the curriculum design and development of the program (https://online.jcu.edu.au/online-courses/master-data-science), offered online by JCU from Oct/2017. I also served as a program co-coordinator until June/2018

TEACHING AND COURSE DEVELOPMENT

I have taught, coordinated and/or designed/developed a diverse list of postgraduate/undergraduate courses:

- **University of Newcastle – Australia (honours and postgraduate courses)**:

    - Data Wrangling and Visualisation (STAT6001 – online)
    - Predictive Analytics (STAT6020 – online)
    - Data Analytics Project (STAT6500)
    - Directed Studies – "Intro. Statistical Learning and Data Mining" (STAT4104)
    - Directed Studies – "Elements of Unsupervised and Semi-Supervised Statistical Learning" (STAT4102)

- **University of Newcastle – Australia (undergraduate course)**:

    - Predictive Analytics (STAT2020)

- **James Cook University – Australia (postgraduate courses)**:

    - Foundations for Data Science (MA5800 – online)
    - Introduction to Data Mining (MA5810 – online)[1]

- **James Cook University – Australia (undergraduate course)**:

    - Statistical Data Mining for Big Data (MA3405)

- **University of São Paulo – Brazil (postgraduate courses)**:

    - Introduction to Machine Learning (SCC5871)
    - Data Cluster Analysis (SCC5895)
    - Semi-Supervised and Unsupervised Data Pattern Analysis (SCC5945)
    - Data Structures [for graduate students holding a degree other than comp. sci.] (SCC5763)
    - Seminar Course on Computing and Computational Mathematics (SCC5846)

- **University of São Paulo – Brazil (undergraduate courses)**:

    - Data Mining from Large Databases (SCC0244)
    - Data Mining from Biology Databases (SCC0173)
    - Computational Modeling with Graphs (SCC0216)
    - Introduction to Intelligent Systems (SCC0531)
    - Introduction to Neural Networks (SCC0570)
    - Advanced Algorithms (preparation for the ACM Int. Programming Contest) (SCE0245)
    - Data Structures and Algorithms: Levels I (SCE0503) and II (SCC0203)
    - Introduction to Computer Programming: Levels I (SCC0120) and II (SCC0501)

- **State University of Campinas – Brazil (postgraduate course)**:

    - Filtering and Dynamic System Identification (IA856)

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1   Course design and content development only.

- **State University of Campinas – Brazil (undergraduate course)**:

  - Laboratory of Control Systems (EA722)

- **Catholic University of Santos – Brazil (postgraduate courses)**:

  - Introduction to Fuzzy Sets and Fuzzy Logic
  - Introduction to Intelligent Systems
  - Advanced Topics on Intelligent Systems
  - Data Structures and Algorithms

SELECTED PROFESSIONAL SERVICES AND ENGAGEMENT

- **Area Chair / Senior Member of International Program Committees**:

  - 2023, 2021 *IEEE Intl. Conf. on Data Mining* – **IEEE ICDM** (Area Chair)
  - 2018 – 17 *IEEE Intl. Conf. on Big Data* – **IEEE Big Data** (Senior PC Member)

- **Member of International Program Committees**:

  - 2023 – 18 *SIAM International Conference on Data Mining* – **SIAM SDM**
  - 2023 – 19 *European Conf. on Machine Learning and Principles and Practice of Knowledge Discovery in Databases* – **ECML PKDD**
  - 2022 IEEE Intl. Conf. on Data Mining – **IEEE ICDM**
  - 2022 – 21, 2019, 2016 – 13 *IEEE Int. Conf. on Big Data* – **IEEE Big Data**
  - 2020 – 19 *EDML Workshop* (within the 2019 SIAM SDM) – EDML
  - 2018, 2015 – 14 *IEEE Int. Conf. on Big Data Science & Eng.* – IEEE BDSE
  - 2018 – 17 *IEEE Int. Conf. on Data Science and Systems* – IEEE DSS
  - 2017 – 16 *IEEE Int. Conf. on Data Sci. and Advanced Analytics* – IEEE DSAA
  - 2016 – 13 *ACM Conf. of Inf. and Knowledge Management* – **CIKM**
  - 2016 – 15 *Canadian Conf. on Artificial Intelligence* – AI
  - 2013 *MultiClust Workshop* (within the 19th ACM SIGKDD 2013) – MultiClust
  - 2012 *ACM SIGKDD Conf. on Knowledge Discovery and Data Mining* – **KDD**
  - 2012 – 2010 *Int. Symp. on Distributed Comp. and Artificial Intell.* – DCAI
  - 2008 *IEEE Int. Conf. on Computational Science and Engineering* – IEEE CES

- **Member of Organizing Committee**:

  - 1st "*Data Science Down Under*" Intl. Workshop, Newcastle, Australia, 2019

- **Member of Editorial Board for International Journals**:

  - **Associate Editor**:

    o 2015 – present: *Computational Intelligence* (Wiley)

  - **Member of Guest Editorial Board**:

    o 2023, 2022, 2021, 2020: *Data Mining and Knowledge Discovery* (Springer)

      - Special Issue "ECML/PKDD Journal Track"

o 2023, 2022, 2021, 2020: *Machine Learning* (Springer)

- Special Issue "ECML/PKDD Journal Track"

PUBLICATIONS AND IMPACT

I have published a number of papers in high-impact international journals as well as many others in peer-reviewed conferences and book chapters. A list of my international publications can be found in my [Google Scholar Profile](#). As of June/2023, there were about 2900, 4990, and 8820 citations to these publications detected by the ISI WebOfScience, Scopus, and Google Scholar databases, respectively (h-index 24, 29, and 37).

SUPERVISIONS / HOSTING OF HIGHLY QUALIFIED PERSONNEL

- **Hosting of Post-Doctoral Fellows and Professors on Sabbatical:**

  1. **Henrique O. Marques,** Post-Doctoral Fellow, Department of Mathematics and Computer Science, Univ. of Southern Denmark, Odense, Denmark, Oct/2021 – <u>Current</u> (co-mentoring).
  2. **Henrique O. Marques,** Post-Doctoral Fellow, Department of Computing Science, University of Alberta, Edmonton, Canada, Jan/2020 – Feb/2021 (co-mentoring).
  3. **Douglas Cedrim Oliveira**, Post-Doctoral Fellow, Department of Computer Science, University of São Paulo, Brazil, July/2016 – June/2018.
  4. **Pablo Andretta Jaskowiak**, Post-Doctoral Fellow, Department of Computer Science, University of São Paulo, Brazil, Dec/2015 – May/2016.
  5. **Jörg Sander** (Full Professor at the Dept. of Computing Science, University of Alberta, Canada), On Sabbatical Leave at the University of São Paulo, Brazil, Jan/2015 – June/2015.

- **PhD Students (supervisions in progress):**

  1. **Victor Hugo A. Soares**, *Transfer and Deep Learning for Pattern Recognition Applications in Agriculture and Cattle Raising*, PhD Thesis, University of São Paulo, to be concluded by **2023** (primary supervisor)
  2. **Luke Yerbury**, *Exploring Multifaceted Clustering of Complex Electricity Time-Series Data to Support Data-Driven Decision-Making in the Energy Sector*, PhD Thesis, University of Newcastle, to be concluded by **2024** (co-supervisor)
  3. **Connor M. Simpson**, *Clustering Meta-Validation and Instance Spaces*, PhD Thesis, University of Newcastle, to be concluded by **2024** (co-supervisor)

- **PhD Students (completed):**

  1. **Antonio C. Araújo Neto**, *A Framework for Hierarchical Density-Based Clustering Exploration*, PhD Thesis, University of Alberta, **2020** (co-supervisor)
  2. **Henrique O. Marques**, *Evaluation and Model Selection for Unsupervised Outlier Detection and One-Class Classification*, PhD Thesis, University of São Paulo, **2019** (sole supervisor)
  3. **Arthur F. Costa**, *Enhancing Recommender Systems by Enrichment with Pre-Processing Approaches Supported by Users' Feedback*, PhD Thesis, University of São Paulo, **2019** (primary supervisor)
  4. **Jadson G. Castro**, *Semi-Supervised Learning Approaches with Applications in Medicinal Chemistry*, PhD Thesis, University of São Paulo, **2019** (sole supervisor)
  5. **Pablo A. Jaskowiak**, *On the Evaluation of Clustering Results: Measures, Ensembles, and Gene Expression Data Analysis*, PhD Thesis, University of São Paulo, **2015** (primary supervisor)

6. **Danilo Horta**, *Algorithms and Validation Techniques in Multi-Represented Data Clustering, Possibilistic Clustering and Bi-clustering*, PhD Thesis, University of São Paulo, **2013** (sole supervisor)
7. **Murilo C. Naldi**, *Ensemble Techniques for Centralized and Distributed Clustering*, PhD Thesis, University of São Paulo, **2011** (primary supervisor)
8. **Jeremias B. Machado**, *Nonlinear Systems Modeling based on Ladder-Structured Generalized Orthonormal Basis Functions*, PhD Thesis, State University of Campinas, **2011** (co-supervisor)
9. **Alex da Rosa**, *Identification of Nonlinear Systems using Volterra Models based on Kautz Functions and Generalized Orthonormal Functions*, PhD Thesis, State University of Campinas, **2009** (co-supervisor)

- **MSc Students (completed):**

  1. **Fernando S. Aguiar Neto**, *Pre-Processing Approaches for Collaborative Filtering based on Hierarchical Clustering*, MSc Dissertation, University of São Paulo, **2018** (co-supervisor)
  2. **Francisco A. R. Anjos**, *Clusters Selection from Hierarchies: a Graph-Based Model*, MSc Dissertation, University of São Paulo, **2018** (sole supervisor)
  3. **Joelson A. Santos**, *Fast Algorithms for Hierarchical Density Estimates and their Applications in Data Mining*, MSc Dissertation, University of São Paulo, **2018** (sole supervisor)
  4. **Victor Hugo A. Soares**, *Combinations of Semantic and Term Frequency Similarities for Text Clustering*, MSc Dissertation, Federal University of Viçosa – UFV, **2017** (co-supervisor)
  5. **Victor A. Padilha**, *Systematic Comparative Evaluation of Bi-Clustering Techniques*, MSc Dissertation, University of São Paulo, **2016** (sole supervisor)
  6. **Antônio J. L. Batista,** *Active, Semi-Supervised Classification based on Multiple Clustering Hierarchies*, MSc Dissertation, University of São Paulo, **2016** (sole supervisor)
  7. **Henrique O. Marques**, *On the Internal Evaluation of Unsupervised Outlier Detection*, MSc Dissertation, University of São Paulo, **2015** (sole supervisor)
  8. **Guilherme O. Campos**, *Study, Evaluation and Comparison of Unsupervised Outlier Detection Techniques*, MSc Dissertation, University of São Paulo, **2015** (sole supervisor)
  9. **Lucas Vendramin**, *Study and Development of Fuzzy Clustering Algorithms in Centralized and Distributed Scenarios*, MSc Dissertation, University of São Paulo, **2012** (sole supervisor)
  10. **Pablo A. Jaskowiak**, *A Study of Correlation Coefficients as Proximity Measures for Gene Expression Data*, MSc Dissertation, University of São Paulo, **2011** (primary supervisor)
  11. **Márcio F. Braga**, *Volterra Models: Nonparametric and Robust Identification using Kautz and Generalized Orthonormal Functions*, MSc Dissertation, State University of Campinas, **2011** (co-supervisor)
  12. **Danilo Horta**, *Evolutionary Approaches to Relational Data Clustering*, MSc Dissertation, University of São Paulo, **2010** (sole supervisor)
  13. **Vinícius S. Alves**, *F-EAC: A Fast Evolutionary Algorithm for Clustering*, MSc Dissertation, Catholic University of Santos, **2007** (primary supervisor)
  14. **Jeremias B. Machado**, *Modeling and Predictive Control using Multi-Models*, MSc Dissertation, State University of Campinas, **2007** (co-supervisor)
  15. **Anderson V. Medeiros**, *Modeling of Nonlinear Dynamic Systems using Fuzzy Systems, Genetic Algorithms and Orthonormal Basis Functions*, MSc Dissertation, State University of Campinas, **2006** (co-supervisor)
  16. **Alex da Rosa**, *Expansion of Volterra Models using Kautz Functions*, MSc Dissertation, State University of Campinas, **2005** (co-supervisor)

- **Honours Students (completed):**

  1. **Alastair Anderberg**, *An Intrinsic Dimensionality Aware Outlier Score*, Honours Thesis, The University of Newcastle - Australia, **2020** (sole supervisor)

- **Undergraduate Students:**

  - 15+ supervisions concluded (capstone projects and research internships)

PROJECTS WITH FUNDING

Main Current Grants and Scholarships

Period	Title	Scheme	Source	Role
2023 – 2028	*Advanced Algorithms for Unsupervised Data Mining with Applications to Gene-Expression Analysis*	NNF International Recruit Grant	Novo Nordisk Fonden (NNF)	Lead Chief Investigator (PI)
2021 – 2024	*Exploring Multifaceted Clustering of Complex Electricity Time-Series Data to Support Data-Driven Decision-Making in the Energy Sector*	PhD Top-Up Grant	Commonwealth Scientific and Industrial Research Organisation (CSIRO), Aus.	Chief Co-Investigator (Co-PI)
2021 - 2024	*Reliable Outlier Detection*	Research Project 1 (Forskningsprojekt 1)	Independent Research Fund Denmark (DFF)	Partner Investigator (Participant)

Main Past Grants and Scholarships

Period	Title	Scheme	Source	Role
2020 – 2022	*Scalable Descriptive Models over Extensive Volumes of Distributed Data*	Regular Grant	São Paulo Research Foundation (Fapesp), Brazil	Partner Investigator (Participant)
2018 – 2022	*Data Science Start-up*	Professorial Grant	University of Newcastle, Australia	Lead Chief Investigator (PI)
2018 – 2022	*Mathematical and Computational Tools for Machine Learning and their Applications*	Individual Grant – Merit Researcher Program (Level 1C)	Brazilian National Research Council (CNPq), Brazil	Lead Chief Investigator (PI)
2018 – 2021	*Machine Learning Approach to Restoration, Prediction and Quality Control of Oceanographic Data from IMOS Moorings*	AIMS/JCU Research Partnership	Australian Institute of Marine Sciences & James Cook University	Chief Co-Investigator (Co-PI)
2014 – 2018	*Mathematical and Computational Tools for Machine Learning and their Applications*	Individual Grant – Merit Researcher Program (Level 1D)	Brazilian National Research Council (CNPq), Brazil	Lead Chief Investigator (PI)
2016 – 2018	*Finding Clusters and Outliers in Big Data*	Professorial Grant	James Cook University, Australia	Lead Chief Investigator (PI)
2014 – 2017	*Density-Based Cluster Analysis and Outlier Detection for High-Dimensional Data*	International Collaboration Project – Science without Borders Program	Brazilian National Research Council (CNPq), Brazil	Lead Chief Investigator (PI)
2008 – 2016	*Individual Student Scholarship Applications (Bulk)*	Msc and PhD	Brazilian National Research Council (CNPq) & São Paulo Research	Supervisor and Main Applicant

			Foundation (Fapesp), Brazil	
2008 – 2016	*Individual Student Scholarship Applications (Bulk)*	Undergraduate Research Internship	Brazilian National Research Council (CNPq) & São Paulo Research Foundation (Fapesp), Brazil	Supervisor and Main Applicant
2014 – 2016	*Methods and Algorithms for Unsupervised and Semi-Supervised Machine Learning*	Regular Grant	São Paulo Research Foundation (Fapesp), Brazil	Lead Chief Investigator (PI)
2012 – 2016	*Center for Research in Machine Learning for Data Analysis*	Special "NAP – PRP/USP" Call	University of São Paulo, Brazil	Partner Investigator (Participant)
2011 – 2014	*Mathematical and Computational Tools for Machine Learning and their Applications*	Individual Grant – Merit Researcher Program (Level 2)	Brazilian National Research Council (CNPq), Brazil	Lead Chief Investigator (PI)
2012 – 2013	*Study and Development of Density-Based and Graph-Based Methods for Clustering and Related Data Mining Techniques*	Sabbatical Grant	Brazilian National Research Council (CNPq)	Lead Chief Investigator (PI)
2011 – 2012	*Study and Development of Validation Methods for Density- and Graph-Based Clustering Techniques*	Sabbatical Grant	São Paulo Research Foundation (Fapesp), Brazil	Lead Chief Investigator (PI)
2009 – 2011	*Modeling of Dynamic Systems using Orthonormal Basis Functions*	Regular (Universal) Call - Small Grants	Brazilian National Research Council (CNPq), Brazil	Lead Chief Investigator (PI)
2007 – 2011	*Computational Intelligence for Data Mining and its Applications*	Early Career (Young Researcher) Grant	São Paulo Research Foundation (Fapesp), Brazil	Lead Chief Investigator (PI)
2005 – 2011	*Architectures, Methods, and Algorithms for Soft Computing and Its Applications*	Individual Grant – Merit Researcher Program (Level 2)	Brazilian National Research Council (CNPq), Brazil	Lead Chief Investigator (PI)
2006 – 2010	*Analysis and Design of Data Clustering Tools*	Regular (Universal) Call - Small Grants	Brazilian National Research Council (CNPq), Brazil	Chief Co-Investigator (Co-PI)
2004 – 2008	*Modeling and Predictive Control of Nonlinear Systems*	Regular (Universal) Call - Small Grants	Brazilian National Research Council (CNPq), Brazil	Chief Co-Investigator (Co-PI)
2005 – 2007	*Nature-Inspired Computing and Its Applications*	Early Career (Young Researcher) Grant	São Paulo Research Foundation (Fapesp), Brazil	Chief Co-Investigator (Co-PI)

Other Selected Funding

- 2019 – MITACS Globalink Research Awards Funding, International Research Internship Program (Antonio C. Araujo Neto – PhD student candidate), *MITACS*

- 2019 – AMSI Scientific Workshop Funding, "Data Science Down Under" International Workshop, *Australian Mathematical Sciences Institute*, *AMSI*

SELECTED ADMINISTRATION/SERVICE DUTIES

- 2018 – 2021: Data science leader (member of various committees, including the new Bachelor of Data Science workgroup), School of Information and Physical Sciences, University of Newcastle

- 2018/19 – 2021: Program convenor for the online *Master of Data Science*, University of Newcastle

- 2018/19 – 2021: Program convenor for the *Graduate Certificate in Data Science* and *Graduate Certificate in Data Analytics*, University of Newcastle

- 2019 – 2021: Program co-convenor for the double degree combined program "*Master of Business Administration (MBA) / Master of Science (Data Analytics)*", University of Newcastle

- 2020: Program convenor for the govt. subsidised special program *Graduate Certificate in Data Analytics – COVID19 "Short Course"*, University of Newcastle

- 2017 – 2018: Program co-coordinator for the online Master of Data Science, James Cook University

- 2014 – 2016: Head and co-founder of the (former) "*Data Pattern Analysis Lab*" at ICMC, University of São Paulo at São Carlos, Brazil

HONORS AND AWARDS

- 2023: 10-Year Test of Time Award (Most Influential Paper from PAKDD 2013) – 27th Pacific-Asia Conf. on Knowledge Discovery and Data Mining, PAKDD 2023.

- 2023 – 2028: Novo Nordisk Fonden Fellowship (NNF International Recruit), Denmark

- 2022: Best Paper Award (runner-up) of 2021 – IEEE Transactions on Big Data

- 2020: Top 2% Scientist in the World – Stanford University's Standardized Citation Metrics and Authors Database

- 2018 – 2022: Merit Scholar of the Brazilian National Research Council (CNPq) – Level 1C

- 2017: ACM 21st Annual Best of Computing (Computing Reviews)

  ◦ 2016 Notable Paper, Association for Computing Machinery (ACM)

- 2013 – 2018: Merit Scholar of the Brazilian National Research Council (CNPq) – Level 1D

- 2011: Formal A/Prof. Habilitation ("*Livre Docência*"), University of São Paulo, Brazil

- 2005 – 2013: Merit Scholar of the Brazilian National Research Council (CNPq) – Level 2