

CURRICULUM VITAE

Pedro Henrique Bugatti

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1 Education

- PostDoc (Visiting Researcher) at the Institute for Advanced Computer Studies (UMI-ACS) - University of Maryland (UMD) at College Park, MD, USA, 2018.
- PhD in Computer Science, University of São Paulo (ICMC-USP), São Carlos, SP, Brazil, 2008–2012. Advisor: Dra. Agma Juci Machado Traina. Dissertation Title: “Content-based image retrieval aimed at reaching user’s perception”
- MSc in Computer Science, University of São Paulo (ICMC-USP), São Carlos, SP, Brazil, 2006-2008. Advisor: Dra. Agma Juci Machado Traina.
- BSc in Computer Science, Euripides Soares da Rocha Univ. of Marília (UNIVEM), Marília, SP, Brazil, 2002-2005. Advisor: Dr. Edward David Moreno Ordonez.

2 Academic positions

- Associate Professor, Department of Computing, Federal University of Technology - Parana, (since Dec, 2010).
- Bioinformatics Graduate Program Deputy Coordinator, Department of Computing, Federal University of Technology - Parana (since Feb 2020).
- Computer Science Graduate Program Deputy Coordinator, Department of Computing, Federal University of Technology - Parana (Feb 2016 - Dec 2017).

3 Research interests

- Computer vision
- Image and video processing analysis.
- Machine learning and pattern recognition.
- Content-based image retrieval.
- Complex data (images, videos, sequences, etc)

4 Teaching experience

- Image Processing (undergraduate and graduate levels).
- Data Mining (graduate level).
- Database Systems (undergraduate level).
- Advanced Database Systems (undergraduate level).
- Software Architecture (undergraduate level).
- Algorithms, Computer Programming, Computer Lab (undergraduate level).

5 Academic services

- Journals

Reviewer: Pattern Recognition Letters, Journal of Medical Imaging, IEEE Transactions on Emerging Topics in Computational Intelligence, Plos One, IEEE Journal of Biomedical And Health Informatics, IEEE Transactions on Industrial Electronics, IEEE Transactions on Industrial Informatics, Artificial Intelligence in Medicine, Computers in Biology And Medicine, Briefings in Bioinformatics, Computers And Electronics in Agriculture, Revista de Informática Teórica e Aplicada: Rita, Expert Systems With Applications, Computational And Structural Biotechnology Journal, Artificial Intelligence Review, Journal Of Ambient Intelligence And Humanized Computing, Biosystems Engineering, Image And Vision Computing, Computer Methods And Programs in Biomedicine, IEEE Access, Entropy, Applied Artificial Intelligence, IEEE Transactions on Pattern Analysis And Machine Intelligence, Symmetry, Innovation And Research In Biomedical Engineering, Applied Sciences

- Funding Agencies

Advisory Committee: National Council for Scientific and Technological Development (CNPq), Araucária Foundation of Support to the Scientific and Technological Development of Paraná.

- Conferences

Program Committee: XV Brazilian e-Science Workshop (BreSci, since 2021), IADIS International Conference Applied Computing (IADIS-AC, since 2012), XII Escola Regional de Banco de Dados (ERBD, 2016), Workshop de Iniciação Científica e Tecnológica de Computação (WICT-ICMC-USP, 2009).

6 Honors and awards

- First Place in the XV WVC Thesis and Dissertations Contest (MSc. Student Rafael S. Bressan) (2019)
- Finalist of the 34th Brazilian Symposium on Databases Theses and Dissertations Contest, Brazilian Symposium on Databases (MSc. Student Rafael S. Bressan) (2019)
- Best Paper Award - IX Demos and Applications Session of the 27th Brazilian Symposium on Databases (SBBD), 2012.

- Among the 10 best MSc. dissertations in the country, Brazilian Computer Society (SBC), 2008.
- Outstanding Student Award, Brazilian Computer Society (SBC), 2005.
- Best Student Award - BSc. in Computer Science (2006).

7 Publications

Journals

1. D. F. Pereira, P. H. Bugatti, F. M. Lopes, A. L. S. M. de Souza and P. T. M. Saito. Assessing Active Learning Strategies to Improve the Quality Control of the Soybean Seed Vigor, in *IEEE Transactions on Industrial Electronics*, vol. 68, no. 2, pp. 1675-1683, 2021.
2. C. M. Silva, K. A. I. Rosa, P. H. Bugatti, P. T. M. Saito, C. G. Correa, R. S. Yokoyama and S. R. R. Sanches. Method for Selecting Representative Videos for Change Detection Datasets, in *Multimedia Tools and Applications*, vol. 81, Issue 29, pp. 1-13, 2021.
3. M. H. P. da Cruz, D. S. Domingues, P. T. M. Saito, A. R. Paschoal and P. H. Bugatti. TERL: classification of transposable elements by convolutional neural networks, in *Briefings in Bioinformatics*, vol. 22, Issue 3, bbaa185, 2021.
4. G. Camargo, P. H. Bugatti, P. T. M. Saito. Active semi-supervised learning for biological data classification. *PLoS One*, vol. 15, pp. e0237428, 2020.
5. D. F. Pereira, P. H. Bugatti, F. M. Lopes, A. L. S. M. Souza and P. T. M. Saito. Contributing to agriculture by using soybean seed data from the tetrazolium test. *Data in Brief*, vol. 23, pp. 103652, 2019.
6. G. V. L. Lima, P. T. M. Saito, F. M. Lopes and P. H. Bugatti. Classification of Texture based on Bag-of-Visual-Words through Complex Networks. *Expert Systems with Applications*, vol. 133, pp. 215-224, 2019.
7. R. S. Bressan, P. H. Bugatti and P. T. M. Saito. Breast Cancer Diagnosis through Active Learning in Content-based Image Retrieval. *Neurocomputing*, vol. 357, pp. 1-10, 2019.
8. T. C. Negri, W. A. L. Alves, P. H. Bugatti, P. T. M. Saito, D. S. Domingues and A. R. Paschoal. Pattern recognition analysis on long noncoding RNAs: a tool for prediction in plants. *Briefings in Bioinformatics*, vol. 20, Issue 2, pp. 682-689, 2018.
9. R. S. Bressan, G. Camargo, P. H. Bugatti, P. T. M. Saito. Exploring active learning based on representativeness and uncertainty for biomedical data classification. *IEEE Journal of Biomedical and Health Informatics*, vol. 23, no. 6 pp. 2238-2244, 2018.
10. P. H. Bugatti, D. S. Kaster, M. P. Silva, A. J. M. Traina, C. Traina Junior. PRoSPer: Perceptual similarity queries in medical CBIR systems through user profiles. *Computers in Biology and Medicine*, v. 45, p. 8719, 2014.

11. D. S. Kaster, P. H. Bugatti, A. J. M. Traina, C. Traina Junior. FMI-SiR: A Flexible and Efficient Module for Similarity Searching on Oracle Database. *Journal of Information and Data Management*, v. 68, n. 12, p. 229-244, 2010.
12. M. X. Ribeiro, P.H. Bugatti, C. Traina Junior, P. M. A. Marques, N. A. Rosa, A. J. M. Traina. Supporting content-based image retrieval and computer-aided diagnosis systems with association rule-based techniques. *Data & Knowledge Engineering*, v. 68, n. 12, p. 1370-1382, 2009.

Conferences

1. F. F. Costa, P. T. M. Saito, P. H. Bugatti. Video Action Classification through Graph Convolutional Networks. In: 16th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications., 2021. Proceedings of the VISAPP, 2021. p. 490-497.
2. J. M. Tozato, P. H. Bugatti, P. T. M. Saito. Active Learning Strategies and Convolutional Neural Networks for Mammogram Classification. In: 20th International Conference on Artificial Intelligence and Soft Computing (ICAISC), 2021, Zakapone - Poland. Lecture Notes in Computer Science. Switzerland: Springer, 2021. v. 1. p. 1-9.
3. W. S. Campos, L. G. Souza, P. T. M. Saito, P. H. Bugatti. Contextual image classification through fine-tuned graph neural networks. In: 20th International Conference on Artificial Intelligence and Soft Computing (ICAISC), 2021, Zakapone, Poland. Lecture Notes in Computer Science. Switzerland: Springer, 2021. v. 1. p. 1-10.
4. M. S. Silva, L. F. Cruz, P. H. Bugatti, P. T. M. Saito. Automatic visual quality assessment of biscuits using machine learning. In: 19th International Conference on Artificial Intelligence and Soft Computing, 2020, Zakopane, Poland. Lecture Notes in Artificial Intelligence. Switzerland: Springer, 2020. v. 1. p. 59-70.
5. L. F. Cruz, P. T. M. Saito, P. H. Bugatti. DeepCloud: An Investigation of Geostationary Satellite Imagery Frame Interpolation for Improved Temporal Resolution. In: 19th International Conference on Artificial Intelligence and Soft Computing (ICAISC), 2020, Zakopane, Poland. Lecture Notes in Computer Science. Switzerland: Springer, 2020. v. 1. p. 50-59.
6. D. F. Pereira, P. H. Bugatti, F. M. Lopes, A. L. S. M. Souza, P. T. M. Saito. An Intelligent System to Enhance the Productivity and Sustainability in Soybean Crop Enterprises. In: the XV Brazilian Symposium, 2019, Aracaju. Proceedings of the XV Brazilian Symposium on Information Systems - SBSI'19, 2019. v. 1. p. 1-8.
7. L. M. Valerio, D. H. A. Alves, L. F. Cruz, P. H. Bugatti, C. Oliveira, P. T. M. Saito. DeepMammo: Deep Transfer Learning for Lesion Classification of Mammographic Images. In: 32th IEEE International Symposium on Computer-Based Medical Systems (CBMS), 2019, Córdoba, Spain. Proceedings of the IEEE CBMS, 2019. v. 1. p. 447-452.
8. M. H. P. Cruz, P. T. M. Saito, A. R. Paschoal, P. H. Bugatti. Classification of Transposable Elements by Convolutional Neural Networks. In: 18th International Conference on Artificial Intelligence and Soft Computing (ICAISC), 2019, Zakopane, Poland. Lecture Notes in Computer Science. Springer: Switzerland, 2019. v. 1. p. 157-168.

9. L. F. Cruz, P. T. M. Saito, P. H. Bugatti. DeepSeed: A Deep Learning Methodology for Automated Soybean Seed Damage Classification. In: 15th International Conference on Machine Learning and Data Mining (MLDM), 2019, New York, United States. Lecture Notes in Computer Science, 2019. v. 1. p. 890-900.
10. L. O. Alves, L. F. Cruz, P. T. M. Saito, P. H. Bugatti. Towards Practical Computer Vision in Teaching and Learning of Image Processing Theories. In: IEEE Frontiers in Education, 2019, Cincinnati, USA. Proceedings of the 49th IEEE Frontiers in Education, 2019. p. 1-7.
11. R. S. Bressan, P. H. Bugatti, P. T. M. Saito. Abordagens de Aprendizado Ativo para Recuperação e Classificação de Imagens. In: Brazilian Symposium on Databases (SBBDD), 2019, Fortaleza. Anais do 34° SBBDD, 2019. p. 1-6.
12. R. S. Bressan, D. H. A. Alves, L. M. Valerio, P. H. Bugatti, P. T. M. Saito. DOCToR: The Role of Deep Features in Content-based Mammographic Image Retrieval. In: 31st IEEE International Symposium on Computer-Based Medical Systems., 2018, Karlstad, Sweden. Proceedings of the IEEE CBMS, 2018. v. 1. p. 158-163.
13. M. Souza Jr., R. S. Bressan, D. F. Pereira, P. T. M. Saito, P. H. Bugatti. Rumo à Melhoria de Produtividade e Sustentabilidade Agrícola por meio da Classificação Automática do Vigor de Sementes de Soja. In: 45° Seminário Integrado de Software e Hardware (SEMISH), 2018, Natal. Anais do SEMISH, 2018. p. 113-124.
14. R. S. Bressan, M. Souza Jr., D. F. Pereira, P. H. Bugatti, P. T. M. Saito. SoyRetrieval - Técnicas de Aprendizado e Recuperação de Imagens para Análise do Vigor de Sementes de Soja. In: 45° Seminário Integrado de Software e Hardware (SEMISH), 2018, Natal. Anais do SEMISH, 2018. p. 77-88.
15. G. Camargo, R. S. Bressan, P. H. Bugatti, P. T. M. Saito. Towards an effective and efficient learning for biomedical data classification. In: 30th IEEE International Symposium on Computer-Based Medical Systems, 2017, Thessaloniki, Greece. Proceedings of the 30th IEEE CBMS, 2017. v. 1. p. 13-18.
16. D. H. A. Alves, L. F. Galonetti, C. Oliveira, P. H. Bugatti, P. T. M. Saito. Going Deeper on BioImages Classification: A Plant Leaf Dataset Case Study. In: 22nd Iberoamerican Congress on Pattern Recognition, 2017, Valparaíso, Chile. Proceedings of the 22nd Iberoamerican Congress on Pattern Recognition, 2017. p. 36-44.
17. D. F. Pereira, P. T. M. Saito, P. H. Bugatti. An image analysis framework for effective classification of seed damages. 31st ACM Symposium on Applied Computing (SAC), p. 61-66, 2016.
18. G. V. L. de Lima, T. R. Castilho, P. H. Bugatti, P. T. M. Saito, and F. M. Lopes. A complex network-based approach to the analysis and classification of images. 20th Iberoamerican Congress on Pattern Recognition (CIARP), Lecture Notes in Computer Science, v. 9423, p. 322-330, 2015.
19. R. Rocha, P. T. M. Saito, P. H. Bugatti. A Novel Framework for Content-Based Image Retrieval through Relevance Feedback Optimization. 20th Iberoamerican Congress on Pattern Recognition (CIARP), Lecture Notes in Computer Science, v. 9423, p. 281-289, 2015.

20. M. G. F. Santanna, P. T. M. Saito, P. H. Bugatti. Content-based image retrieval towards the automatic characterization of soybean seed vigor. 29th ACM Symposium on Applied Computing (SAC), p. 964-969, 2014.
21. M. A. P. Terrin, C. N. Silla Junior, P. H. Bugatti. Utilizando técnicas de mineração de dados para apoiar a busca ativa de famílias em situação de vulnerabilidade e risco social. XLI Seminário Integrado de Software e Hardware (SEMISH-SBC), p. 1051-1062, 2014.
22. M. P. Silva, J. P. Souza, P. H. Bugatti, M. V. N. Bedo, D. S. Kaster, R. T. V. Braga, A. D. Bellucci, P. M. A. Marques, C. Traina Junior, A. J. M. Traina. Does a CBIR system really impact decisions of physicians in a clinical environment?. 26th IEEE International Symposium on Computer-Based Medical Systems (CBMS), p. 41-46, 2013.
23. A. Brillhador, T. P. Colonhezi, P. H. Bugatti, F. M. Lopes. Combining Texture and Shape Descriptors for Bioimages Classification: A Case of Study in ImageCLEF Dataset. 18th Iberoamerican Congress on Pattern Recognition (CIARP), Lecture Notes in Computer Science. Berlin: Springer-Verlag, v. 8258. p. 431-438, 2013.
24. M. P. Silva, P. H. Bugatti, R. M. Reis, P. M. A. Marques, M. H. N. Barbosa, C. Traina Junior, A. J. M. Traina. A Differential Method for Representing Spinal MRI for Perceptual-CBIR. 18th Iberoamerican Congress on Pattern Recognition (CIARP), Lecture Notes in Computer Science, Berlin: Springer-Verlag, v. 8258, p. 464-471, 2013.
25. M. V. N. Bedo, M. P. Silva, D. S. Kaster, P. H. Bugatti, A. J. M. Traina, C. Traina Junior. Higiiia: A Perceptual Medical CBIR System Applied to Mammography Classification. Demo and Applications Session of the XXVII Brazilian Symposium on Databases (SBBDD), p. 13-18, 2012.
26. P. H. Bugatti, D. S. Kaster, M. P. Silva, A. J. M. Traina, C. Traina Junior. Integrating user profile in medical CBIR systems to answer perceptual similarity queries. SPIE Medical Imaging Conference, p. 1-12, 2011.
27. D. S. Kaster, P. H. Bugatti, M. P. Silva, A. J. M. Traina, C. Traina Junior. MedFMI-SiR: A Powerful DBMS Solution for Large-scale Medical Image Retrieval. 2nd International Conference on Information Technology in Bio- and Medical Informatics (ITBAM), Lecture Notes in Computer Science, v. 6865, p. 16-30, 2011.
28. P. H. Bugatti, A. J. M. Traina, C. Traina Junior. Improving Content-Based Retrieval of Medical Images through Dynamic Distance on Relevance Feedback. 24th IEEE International Symposium on Computer-Based Medical Systems (CBMS), p. 92-97, 2011.
29. P. H. Bugatti, M. X. Ribeiro, A. J. M. Traina, C. Traina Junior. Feature Selection Guided by Perception in Medical CBIR Systems. IEEE International Conference on Healthcare Informatics, Imaging and Systems Biology (HISB), p. 323-330, 2011.
30. P. H. Bugatti, A. J. M. Traina. On the Effects of Distance Functions to Improve Content-based Image Retrieval. XXII Concurso de Teses e Dissertações (associado ao XXIX Congresso da Sociedade Brasileira de Computação. p. 105-112, 2009.

31. P. H. Bugatti, M. P. Silva, A. J. M. Traina, C. Traina Junior, P. M. A. Marques. Content-Based Retrieval of Medical Images: from Context to Perception. 22nd IEEE International Symposium on Computer-Based Medical Systems (CBMS), p. 9-15, 2009.
32. D. S. Kaster, P. H. Bugatti, A. J. M. Traina, C. Traina Junior. Incorporating Metric Access Methods for Similarity Searching on Oracle Database. XXIV Brazilian Symposium on Databases (SBBDB), p. 1-15, 2009.
33. P. H. Bugatti, A. J. M. Traina, J. C. Felipe, C. Traina Junior. A New Method to Efficiently Reduce Histogram Dimensionality. SPIE Medical Imaging (MI03): Computer-Aided Diagnosis, v.6915, p. 69152Y-1?69152Y-9, 2008.
34. P. H. Bugatti, A. J. M. Traina, C. Traina Junior. Assessing the Best Integration between Distance-function and Image-Feature to Answer Similarity Queries. 23rd ACM Symposium on Applied Computing (SAC), v. 2, p. 1225-1230, 2008.
35. P. H. Bugatti, M. X. Ribeiro, A. J. M. Traina, C. Traina Junior. Content-based Retrieval of Medical Images by Continuous Feature Selection. 21th IEEE International Symposium on Computer-Based Medical Systems (CBMS), v. 1, p. 272-277, 2008.
36. C. Y. V. W. Silva, P. H. Bugatti, M. X. Ribeiro, A. J. M. Traina, C. Traina Junior. Improving CBIR Using Feature Extraction Based on Wavelet Transform. XIV Brazilian Symposium on Multimedia and Web Systems (WebMedia), v. 1, p. 9-15, 2008.

Book Chapters

1. L. S. Oliveira, A. C. Patera, D. S. Domingues, D. S. Sanches, P. H. Bugatti, P. T. M. Saito, V. Maracaja-Coutinho, A. M. Durham, A. R. Paschoal. Computational Analysis of Transposable Elements and CircRNAs in Plants. In: Luis María Vaschetto. (Org.). Plant Circular RNAs: Methods and Protocol. 1ed. New York, NY: Springer US, 2021, v. 2362, p. 147-172.
2. A. J. M. Traina, C. Traina Junior, A. G. R. Balan, M. X. Ribeiro, P. H. Bugatti, C. Y. V. W. Silva, P. M. A. Marques. Feature Extraction and Selection for Decision Making over Medical Images. Biomedical Image Processing - Methods and Applications, Editor Thomas Deserno. 1ed. Berlin: Springer-Verlag, p. 181-209, 2011.
3. A. T. Neto, R. P. M. Fortes, F. C. Teixeira, L. C. D. Alves, P. H. Bugatti, O. A. Carvalho Jr. Interfaces Multimodais Dinâmicas Utilizando J2EE. In: Marcos Roberto da Silva Borges; José Gonçalves Pereira Filho. (Org.). Mini-cursos WebMedia 2008. 1ed. Vila Velha - ES: Sociedade Brasileira de Computação SBC, 2008, v. 1, p. 1-48.

8 References

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9 Graduate students

- PhD:
 1. Reginaldo da Rocha. Applying deep neural networks in seed vigor definition, 2020–
 2. Carlos Bertoneceli Júnior. Self-supervised learning in complex data contexts (Co-advisor), 2020–.
 3. Murilo Horacio Pereira Da Cruz. Biology sequence segmentation and classification, 2020–.
- MSc:
 1. Sarah Migliari. Sequences' classification through image representation, 2021–.
 2. Lucas Lira. Unbiased machine learning in complex data classification, 2021–.
 3. Cristiano Neia de Oliveira Bassani. Semi-supervised convolutional neural networks, 2020–.
 4. Elton Custodio Júnior. Proposal of difficulty maps to meta image segmentation (Co-advisor), 2020–.
 5. William Sayle Marins Silva. Image classification thorough deep random walk, 2019– Grant Coordination for the Improvement of Higher Education Personel
 6. Walacy da Silva Campos. Complex data classification through graph measures and pruning, 2019–.
 7. Lucas Garcia Batista. Deep Learning using graphs to video classification (Co-advisor), 2019–.
 8. Felipe Franco Costa. Video action classiication through graph convolutional neural networks, 2017–2020.
 9. Murilo Horácio Pereira Cruz. Classification of transposable elements through convolutional neural networks, 2018–2020.
 10. Lucas Messias Valério. Deep active learning for anotation and diagnostic of enteroparasites (Co-advisor), 2018-2020. Grant Coordination for the Improvement of Higher Education Personel.
 11. Marcelo de Souza Júnior, Towards Deep Learning Techniques for Classification of Damages in Soybean Seeds, 2016–2018
 12. Guilherme Camargo, Active Semi-Supervised Learning for Classification of Diseases (Co-advisor), 2016–2018

13. Vinícius Picosse Teruel. Unveiling the human face patterns for creating avatar representations (Co-advisor), 2016–2018,
14. Geovana Loureiro de Lima, A Novel Approach to Description and Analysis of Soybean Seeds Images, 2015–2017, CNPq Grant.
15. Reginaldo da Rocha, Exploiting Evolutionary Approaches for Content-Based Image Retrieval, 2015-2016.
16. Marcus Glauco Faria de Santanna, Automatic Retrieval and Classification of Soybean Seed Vigor, 2014-2015.
17. Marcos Alexandre Pastori Terrin, Using Data Mining to Support Active Search for Families in Situation of Vulnerability and Social Risk (Co-advisor), 2014-2015.

10 Research grants

1. Simbio: bioimages similarity queries towards user's perception Call CNPq, Universal 01/2016 - Faixa A, 431668/2016-7, 2016-.
2. Improvement of the productivity in the agricultural production through methods, techniques and analysis of bioimages. Call MCTI/SETEC/CNPq 54/2013 - RHAE Researcher in the Company, 2015-2016.