

# Curriculum Vitae

Bernhard Pfahringer

March 7, 2024



## 1 Academic Qualifications

1995, Dr.techn., Vienna University of Technology  
1985, Dipl.-Ing., Vienna University of Technology

## 2 Professional positions held

- Dec 2017 - present: Professor, Computer Science Department, University of Waikato
- Jun 2017 - Oct 2017: Professor, Computer Science Department, University of Auckland
- 2015 - Jun 2017: Professor, Computer Science Department, University of Waikato
- 2013 - Jun 2017: Head of Department, Computer Science, University of Waikato
- 2007 - 2014: Associate Professor, Computer Science Department, University of Waikato
- 2000 - 2007: Senior Lecturer, Computer Science Department, University of Waikato
- 1997 - 2000: Research Fellow, Austrian Research Institute for AI

- 1996 - 1997: Postdoctoral Research Fellow, Computer Science, University of Waikato
- 1992 - 1998: Research Fellow, Austrian Research Institute for AI, Machine Learning
- 1986 - 1991: Research Assistant, Inst. for Medical Cybernetics and AI, University of Vienna
- 1985 - 1991: Research Associate, Austrian Research Institute for AI, Expert Systems

### 3 Teaching Experience

#### 3.1 Teaching at the University of Waikato (except where noted)

- COMPX525A Deep Learning, 2024.
- COMPX310B Machine Learning, 2024 (with Nick Lim).
- COMPX525A Deep Learning, 2023.
- COMPX310B Machine Learning, 2023 (with Nick Lim).
- COMPX525A Deep Learning, 2022.
- COMPX310B Machine Learning, 2022 (with Nick Lim).
- COMPX560A Turing Topics on Deep Learning, 2021.
- COMPX310B Machine Learning, 2021 (with Nick Lim).
- COMPX310A Machine Learning, 2020.
- COMPX223A Database Practice and Experience, 2020 (with Colin Pilbrow).
- COMPX310A Machine Learning, 2019.
- COMPX305B Practical Data Mining, 2019 (with Lyn Hunt).
- COMPX523A Data Stream Mining, 2019.
- COMPX203A Computer Systems, 2018 (with Tom Levy).
- COMP423A/523A Data Stream Mining, 2018.
- COMPX203A Computer Systems, 2018 (with Tom Levy).
- ENGEN103A Engineering Computing, 2018 (with Eibe Frank).

- COMPSCI280 Introduction to Software Development, 2017 (UoA, with Angela Chang).
- COMP423A/523A Data Stream Mining, 2017.
- COMP421A/521A Machine Learning Algorithms, 2016.
- COMP423B/523B Data Stream Mining, 2016.
- COMP316A AI Techniques and Applications, 2015 (with Sam Sarjant).
- COMP423B/523B Data Stream Mining, 2015.
- COMP316A AI Techniques and Applications, 2014 (with Sam Sarjant).
- COMP423A/523A Data Stream Mining, 2014.
- COMP316A AI Techniques and Applications, 2013 (with Sam Sarjant).
- COMP423A/523A Data Stream Mining, 2013.
- COMP312A Computer Networks, 2012 (with Tony McGregor).
- COMP316A AI Techniques and Applications, 2012 (with Eibe Frank).
- COMP422A/522A Relational Data Mining, 2012.
- COMP313A Programming Languages, 2011.
- COMP423A/523A Data Stream Mining, 2011.
- COMP313A Programming Languages, 2010.
- COMP314B Software Engineering Project, 2009.
- COMP317A Design and Analysis of Algorithms, 2009 (with Tony Smith).
- COMP522B Relational Data Mining, 2009.
- COMP204B Object-Oriented Program Design, 2008.
- COMP314B Software Engineering Project, 2008 (with John Cleary).
- COMP522B Relational Data Mining, 2008.
- COMP204B Object-Oriented Program Design, 2007.
- COMP314A Software Engineering Project, 2007 (with John Cleary).
- COMP522B Relational Data Mining, 2007.
- COMP416A/516A Topics in Data Mining, 2006 (with Eibe Frank).
- COMP316A AI Techniques and Applications, 2006 (with Eibe Frank).

- COMP313A Programming Languages, 2006 (with Steve Reeves).
- COMP317B Design and Analysis of Algorithms, 2005 (with Tony Smith).
- COMP316A AI Techniques and Applications, 2005 (with Geoff Holmes).
- COMP314A Software Engineering Project, 2005 (with Mark Hall).
- COMP317B Design and Analysis of Algorithms, 2004.
- COMP313A Programming Languages, 2004 (with Margaret Jeffries).
- COMP314A Software Engineering Project, 2004 (with Rob Akscyn).
- COMP314A Software Engineering Project, 2003.
- 0657.209B Object-oriented Programming, 2002.
- 0657.416A/516A Topics in AI, 2002 (with Eibe Frank).
- 0657.316A AI Techniques and Applications, 2002 (with Eibe Frank).
- 0657.209B Object-oriented Programming, 2001.
- 0657.316A AI Techniques and Applications, 2001.
- 0657.209B Object-oriented Programming, 2000.
- 0657.316A AI Techniques and Applications, 2000.

### **3.2 Teaching at the University of Vienna**

- Inductive Logic programming course, summer term 1998.
- Introductory Machine Learning course (together with Gerhard Widmer) each winter term from 1987 until 1995.
- A more hands-on and specialized Machine Learning course (together with Gerhard Widmer) each summer term from 1988 to 1995.
- A hands-on Knowledge Representation course each summer term from 1992 until 1997.

## **4 Service at the University of Waikato**

- Co-director of the AI Institute at Waikato University.
- Assistant Dean Research.
- (previously) Faculty representative at Academic Board
- (previously) Head of the Computer Science Department.

- (previously) Deputy head of the Machine Learning research group.
- (previously) Faculty Representative at Postgraduate Studies Committee.
- (previously) Associate Dean Research.
- (previously) Departmental Advisor for Graduate Diploma in IT admissions.
- (previously) Convenor of the Artificial Intelligence theme and of the Data Mining theme of the BCMS programme.
- (previously) Departmental Advisor for Postgraduate Diploma in CS admissions.
- (previously) Departmental representative on the School's Web committee.

## 5 Scholarship and research

### 5.1 Generation of externally funded research

- MBIE grant: “TAIAO: Time-Evolving Data Science / Artificial Intelligence for Advanced Open Environmental Science”, key researcher, 2019-2025.
- PDH grant: “Visual Skin Disease Clinical Decision Support Tool”, Scientific Advisor, Nov 2018 - Oct 2019.
- PDH grant: “GP Triage using Deep Learning”, Associate Investigator, Aug 2018 - Jul 2020.
- PDH grant: “Interpretable Machine Learning”, Scientific Advisor, Jul 2018 - Jan 2020.
- MBIE grant: “Precision driven healthcare initiative”, Scientific Theme Leader for “predictive modelling”, 2016-2023.
- Marsden grant: “Deep learning without the headache: computationally efficient extraction of features from data with many correlated variables”, Marsden Funds, Associate Investigator, 2016-2018.
- BuildIT Post-Doctoral Grant Award for Dr. Bifet, 2010-2012.
- TAD Scholarship for Sam Sarjant, 2009-2013.
- Marsden grant: “Predicting Sets by Discovering and Exploiting Neighbourhood Relationships”, Marsden Funds, Principal Investigator, 2004-2007.
- FRST project on NIR prediction, Objective Leader, 2004-2007.

- FRST project on GCMS prediction, Objective Leader, 2008-2012.
- Pilot data mining study for Metrix (Division of Mighty River Power), Principal Investigator, Nov.2008-Aug.2009.
- The Smash Palace Fund, minor CS/ML support for this Music Department project, May 2005-May 2006.
- EU MetaL research project, Objective Leader, 1999.
- Consultancy work for Orica, Crop and Food, Hill Labs, and Mariner7.com.

## 5.2 Research and Honour's students at Waikato

Type	Name	Supervision	Finished
PhD	Nilesh Verma	supervisor	ongoing
PhD	Lea Casse	supervisor	ongoing
PhD	Justin Liu	supervisor	ongoing
PhD	Muhammad Zain Ali	chief supervisor	ongoing
PhD	Yibin Sun	chief supervisor	ongoing
PhD	Max Li	chief supervisor	ongoing
PhD	Zijing Zhang	supervisor	ongoing
PhD	Matthew Skiffington	supervisor	ongoing
PhD	Hongyu Wang	supervisor	submitted
PhD	Chen Zheng	chief supervisor	2024
PhD	Nuwan Gunasekara	supervisor	2023
PhD	Rajchada Chanajitt	chief supervisor	2023
PhD	Vithya Yogarajan	chief supervisor	2022
PhD	Attaullah Sahito	chief supervisor	2022
PhD	Alex Peng (UoA)	supervisor	2021
PhD	Henry Gouk	chief supervisor	2019
PhD	Tim Leathart	supervisor	2019
PhD	Sam Weng	supervisor	2018
PhD	Felipe Bravo	chief supervisor	2017
PhD	Quan Sun	chief supervisor	2014
PhD	Sam Sarjant	chief supervisor	2013
PhD	Edmond Zhang	supervisor	2013
PhD	Stefan Mutter	chief supervisor	2011
PhD	Jesse Read	chief supervisor	2010
PhD	Grant Anderson	chief supervisor	2008
PhD	Richard Kirkby	supervisor	2008
PhD	Roger Clayton	supervisor	2004
MSc	Zane Neave	chief supervisor	ongoing
MSc	Alan Ansell	chief supervisor	2020
MSc	Arun Khanchandani	chief supervisor	2019
MSc	Vladimir Petko	chief supervisor	2016
MSc	Adam Lynam	chief supervisor	2009
MSc	Nripendra Pradhananga	chief supervisor	2007
MSc	Ben Clelland	supervisor	2006
MSc	Maximilien Sauban	chief supervisor	2004
592	Jon Featherstone	chief supervisor	2020
591	Li Lai	chief supervisor	2024
591	Jonathan Hannam	chief supervisor	2014
591	Vladimir Petko	chief supervisor	2012
591	Nripendra Pradhananga	chief supervisor	2006
591	Quan Qiu	chief supervisor	2005
520	Pasindu Danawala Gamage	chief supervisor	2023
520	Reece Brown	chief supervisor	2022
520	Cameron Gillespie	chief supervisor	2021
520	Andrew Simmons	chief supervisor	2019
520	Luke Schwarz	chief supervisor	2019
520	Tristan Anderson	co supervisor	2018
520	Frankie Yuan	chief supervisor	2017
520	Jean Pierre Möller	chief supervisor	2016
520	Luke Edwards	chief supervisor	2015
520	Mark Feaver	chief supervisor	2013
520	Tony Gray	chief supervisor	2012
420	Veronica Liesaputra	chief supervisor	2005

### 5.3 Research students at other universities

Type	Name	Supervision	Finished
791 (UoA)	Boyang Tang	chief supervisor	2018
791 (UoA)	Zhao Jin	chief supervisor	2018
German MSc	Markus Blumenstock	chief supervisor	2014
German MSc	Uwe Dick	chief supervisor	2006
German MSc	Peter Reutemann	chief supervisor	2004
German MSc	Nils Weidmann	supervisor	2003

### 5.4 Professional contribution, and recognition

- Honorary Doctorate, Amity University, India, 2020.
- Honorary Professorship, Amity University, India, 2020.
- Member of the Editorial Board of the Machine Learning Journal, since 2002.
- Member of the Editorial Board of the Data Mining and Knowledge Discovery Journal, since 2015.
- Founding member, and Co-Vice Chair: ACM SIGKDD ANZ Chapter, 2014.
- Member of the IEEE Data Mining TC of the CI Society, since 2013.
- Member of the Steering Committee for the Discovery Science Conference series, since 2010.
- Member of the Steering Committee for the Asian Conference on Machine Learning series, 2009-2015.
- Spanish government travel award for a research visit to the Technical University of Barcelona (UPC) to do joint research work with Prof. Gavalda, Sept. 2011.
- Research visits to Prof. Kramer's research group at the University of Technology, Munich, Germany; Sept.2003-Dec.2003, Sept.2006-Dec.2006, and July 2010-Sept.2010.
- PhD examiner for Mr. Fabricio Jose de Oliveira Ceschin, Universidade Federal do Parana, Curitiba, Brazil, Feb. 2023.
- PhD examiner for Mr. Guilherme Weigert Cassales, Universidade Federal de Sao Carlos, Brazil, July 2021.
- PhD examiner for Mr. Emanuele Pio Barracchia, University of Bari, Italy, Dec. 2020.



- PhD examiner for Mr. Md Zahidul Islam, University of South Australia, Sept. 2020.
- PhD examiner for Mr. Shengwei Hu, University of Auckland, Feb. 2020.
- PhD examiner for Mr. Abraham Weinberg, Ben-Gurion University of the Negev, Israel, Dec. 2019.
- PhD examiner for Mr. Dawei Chen, The Australian National University, Canberra, July 2019.
- PhD examiner for Mr. Jean Paul Barddal, Pontificia Universidade Católica do Paraná, Nov. 2018.
- PhD examiner for Mr. Sunil Aryal, Monash University, Sep. 2017.
- PhD examiner for Mr. Xianbin Gu, University of Otago, June 2017.
- Habilitation examiner for Dr. Georg Krempl, Otto-von-Guericke University Magdeburg, Oct. 2016.
- PhD examiner (including a travel grant to attend in person) for Mr. Jan van Rijn, Leiden University, Dec. 2016.
- PhD examiner for Mr. Daniel Weimar, University of Bremen, Jul. 2016.
- PhD examiner for Mr. David Huang, Auckland University, Nov. 2015.
- PhD examiner for Mr. Cong An Tran, Massey University, Oct. 2013.
- PhD examiner for Ms. Yun Zhang, Victoria University, June 2011.
- PhD examiner (including a travel grant to attend in person) for Ms. Rita Ribeiro, University of Porto, Portugal, Sept. 2011.
- PhD examiner, Mr. Alfred Krzywicki, School of Computer Science and Engineering, University of New South Wales (UNSW), Nov. 2011.
- PhD examiner, Mr. Tao Yang, School of Engineering, University of Auckland, Feb. 2010.
- Masters thesis examiner, Mr. Jonathan Robert Wells, Faculty of Information Technology, Monash University, Australia, May 2009.
- PhD examiner (including a travel grant to attend in person) for Ms. Anneleen Van Assche, Catholic University of Leuven, Belgium, Jan. 2008.
- An invited journal version of an award-winning conference paper was published in 2007. The Best paper award was from the International Conference on Information Technology in Asia (CITA'05) for "Cache hierarchy inspired compression: a novel architecture for data streams", by Geoffrey Holmes, Bernhard Pfahringer and Richard Kirkby. This paper was an outcome of Richard Kirkby's PhD work, which was supervised by Geoff Holmes and me.

## 5.5 Invited Talks

- Invited keynote talk at the 14th IEEE Confluence 2024 Conference, Noida, India, 2024.
- Invited talk, ECMLPKDD workshop on Neuro-symbolic Metalearning and AutoML, Torino, Italy, 2023
- Invited talk on “Generative AI” for PRINZ, the Public Relations Institute of New Zealand, 2023.
- Invited keynote talk at the 13th IEEE Confluence 2023 Conference, Noida, India, 2023.
- Invited keynote talk at the 12th IEEE Confluence 2022 Conference, Noida, India, 2022.
- Invited speaker for the 32nd Australasian Database Conference (ADC), Dunedin, 2021.
- Invited keynote talk at ETTIS-2021, Noida, India, 2021.
- Invited talk on “Generative AI” for PRINZ, the Public Relations Institute of New Zealand, 2020.
- Invited keynote talk at the 10th IEEE Confluence 2020 Conference, Noida, India, 2020.
- Invited public lecture for the Ross Ihaka Lecture series, Auckland, 2019.
- Invited keynote talk at the 5th Workshop on Machine Learning for Sensory Data Analytics, Wellington, 2018.
- Invited keynote talk at the IoT Large Scale Learning from Data Streams Workshop, at ECML PKDD 2018, Dublin.
- Invitation-only Dagstuhl workshop on Automating Data Science, Oct 2018.
- Two week research visit to Telekom ParisTech, including three seminar talks, Sep 2018.
- Invited keynote at 9th Asian Conference on Intelligent Information and Database Systems (ACIIDS 2017), Kanazawa, 2017.
- Invited lectures on Data Stream Mining, Third International Winter School on Big Data, Bari, 2017.
- Invited keynote talk at the Third European Network Intelligence Conference (ENIC2016), Wroclaw, 2016.
- Invited keynote talk at the Meta-learning & Algorithm Selection Workshop (MetaSel2015), Porto, 2015.

- Invited keynote talk at the Big Data, Streams and Heterogeneous Source Mining Workshop (BigMine 2015), Sydney, 2015.
- Invited talk at the iKnow2014 conference, Graz, Austria, as part of an invited and fully paid-for research visit to the Know Center of the Technical University of Graz, 2014.
- Invited keynote talk at the Machine Learning for Sensory Data Analysis Workshop (MLSDA 2013), Dunedin, 2013.
- Invited keynote talk at the First International Workshop on Learning with Weak Supervision (LAWS2012), ACML, Singapore, 2012.
- Invited seminars before 2012: Yahoo! Research Barcelona (Sept.2011), University of Zaragoza (Sept.2011, travel grant Barcelona-Zaragoza-Barcelona), Technical University of Barcelona/UPC (Sept.2011), University of Porto (Sept.2010, travel grant Barcelona-Porto-Barcelona), Catholic University of Leuven, Belgium, (Jan.2008, travel grant NZ-Leuven-NZ), Austrian Research Institute for Artificial Intelligence (Nov.2006, travel grant Munich-Vienna-Munich), University of Lyon (Oct.2006, travel grant Munich-Lyon-Munich), Technical University of Munich (Dec.2006, and Sept.2010).

## 5.6 Conference organization and reviewing

- 2023 Area Chair, ECML PKDD 2023, Torino, Italy
- 2022 Area Chair, ECML PKDD 2022, Grenoble, France
- 2022 Area Chair, IJCAI-ECAI 2022, Vienna, Austria
- 2021 Co-Chair, NZAIR2021 (New Zealand Workshop on Artificial Intelligence Research), Hobbiton, New Zealand
- 2020 Area Chair, NeurIPS 2020, Virtual.
- 2018 Area Chair, ECML PKDD 2018, Dublin, Ireland
- 2017 Area Chair, ECML PKDD 2017, Skopje, Mazedonia
- 2016 Tutorial Chair, ACML 2016, Hamilton, New Zealand
- 2016 Area Chair, ECML PKDD 2016, Riva del Garda, Italy
- 2015 Program co-chair Australasian AI Conference 2015, Canberra, Australia
- 2015 Area Chair, ECML PKDD 2015, Porto, Portugal
- 2014 Area Chair, ECML PKDD 2014, Nancy, France
- 2013 Area Chair, ECML PKDD 2013, Prague, Czech Republic

- 2012 Special Session Chair, PRICAI2012, Kuching, Malaysia
- 2012 Area Chair, ECML PKDD 2012, Bristol, UK
- 2011 Area Chair, ICML2011, Bellevue, Washington, USA
- 2010 Program co-chair Discovery Science 2010, Canberra, Australia
- 2009 Workshop chair, PAKDD2009, Bangkok, Thailand
- 2007 Area Chair, ECML/PKDD2007, Warsaw, Poland
- 2006 Area Chair, ECML/PKDD2006, Berlin, Germany
- 2005 Co-organizer and program co-chair ILP2005, Bonn, Germany
- 2004 Workshop chair, PRICAI2004, Auckland, New Zealand
- 2002 - ongoing: Program committee member / reviewer for various conferences, including DS2023, IJCAI2023, KDD2023, SAC2023, AJCAI23, AJCAI22, ACIIDS22, DS22, ICANN22, PRICAI22, KDD2021, PRICAI2021, DS2021, ICCS2021, ACIIDS2021, AJCAI2021, DS2021, ICCS2021, AJCAI2020, ECMLPKDD2020, DS2020, ACIIDS2020, ICCS2020, KDD2020, AI2019, DS2019, ICCS2019, PRICAI2019, KDD2019, SAC2019, ACML2018, DS2018, KDD2018, ECML2018, SAC2018, KDD2017, ACML2017, ILP2017, DS2017, SAC2017, KDD2016, ACML2016, ILP2016, DS2016, KDD2015, ACML2015, ILP2015, DS2015, KDD2014, ACML2014, ILP2014, DS2014, PRICAI2014, KDD2013, ILP2013, DS2013, ACML2013, KDD2012, ILP2012, DS2012, ACML2012, KDD2011, ECMLPKDD2011, IJCAI2011, ILP2011, PAKDD2011, ACML2011, ICML2010, KDD2009, ECML2009, ECML2008, ECML2007, ILP2009, ILP2008, ILP2007, ACML2009, PAKDD2010, PAKDD2009, PAKDD2008, PAKDD2007, DS2009, DS2008, DS2007, ECAI2006, ICML2006, KDD2006, DS2006, ILP2006, IJCAI2005, ICML2005, DS2005, ECML2005, PKDD2005, ICML2004, ECML2004, IJCAI2003, ICML2003, ECML2003, ILP2002, ICML2002.

## 5.7 Publications

### 5.7.1 Books

Books:

1. Bifet A., Gavalda R., Holmes G., and Pfahringer B.: Machine Learning for Data Streams with Practical Examples in MOA, MIT Press, 2018.

Book chapters:

1. Frank E., Hall M., Holmes G., Kirkby R., Bernhard Pfahringer, Ian H. Witten, and Len Trigg. WEKA: A Machine Learning Workbench for Data Mining. Data Mining and Knowledge Discovery Handbook. Springer-Verlag, 2005.

2. Helma, C., Gottmann, E., Kramer, S. and Pfahringer, B. Artificial Intelligence Methoden zur Vorhersage der Kanzerogenitaet organischer Verbindungen. in: Schöfl H, Spielmann H, Tritthart HA (Hrsg.): Ersatz- und Ergaenzungsmethoden zu Tierversuchen, Springer Verlag, 1999.
3. Mozetic I., Pfahringer B.:Improving Diagnostic Efficiency in KARDIO: Abstractions, Constraint Propagation, and Model Compilation, in Keravnou E.(ed.), Deep Models for Medical Knowledge Engineering, Elsevier, Amsterdam/New York, pp.1-25, 1992.
4. Porenta G., Pfahringer B., Hoberstorfer M., Trappl R.:A Decision Support System for Village Health Workers, in Buchberger E., et al.(eds.), Artificial Intelligence - Perspectives and Implications, CompLex, Norwegian University Press, Oslo, 11/87, 1987.

### 5.7.2 Journal Articles

Article in Refereed Journal

1. Wang H., Frank E., Pfahringer B., Mayo M., Holmes G.: Feature extractor stacking for cross-domain few-shot learning. *Machine Learning* 113 (1), 121-158, 2024.
2. Li M., Frank E., Pfahringer B.: Large scale K-means clustering using GPUs. *Data Min. and Knowl. Discov.* 37(1): 67-109, 2023.
3. Antonanzas J., Jia Y., Frank E., Bifet A., Pfahringer B.: teex: A toolbox for the evaluation of explanations. *Neurocomputing*, vol. 555, 2023.
4. Cassales G.W., Gomes H.M., Bifet A., Pfahringer B., Senger H.: Balancing Performance and Energy Consumption of Bagging Ensembles for the Classification of Data Streams in Edge Computing. *IEEE Trans. Netw. Serv. Manag.* 20(3): 3038-3054, 2023.
5. Lim N., Bifet A., Bull D., Fank E., Jia Y., Montiel J., Pfahringer B.: Showcasing the TAI AO project: providing resources for machine learning from images of New Zealand’s natural environment. *Journal of the Royal Society of New Zealand* 53 (1), 69-81, 2023.
6. Sun Y., Pfahringer B., Gomes H.M., Bifet A.: SOKNL: A novel way of integrating K-nearest neighbours with adaptive random forest regression for data streams. *Data Min. Knowl. Discov.* 36(5): 2006-2032, 2022.
7. Bravo-Marquez F., Khanchandani A., Pfahringer B.: Incremental Word Vectors for Time-Evolving Sentiment Lexicon Induction. *Cognitive Computing* 14(1): 425-441, 2022.
8. Barracchia E.P., Pio G., Bifet A., Gomes H.M., Pfahringer B, Ceci M.: LP-ROBIN: Link prediction in dynamic networks exploiting incremental node embedding. *Information Science* 606: 702-721, 2022

9. Read J., Pfahringer B., Holmes G., Frank E.: Classifier chains: a review and perspectives. *Journal of Artificial Intelligence Research* 70: 683-718, 2021.
10. Gouk H., Frank E., Pfahringer B., Cree M.J.: Regularisation of neural networks by enforcing lipschitz continuity. *Machine Learning* 110 (2): 393-416, 2021.
11. Weigert-Cassales G., Murilo-Gomes H., Bifet A., Pfahringer B., Senger H.: Improving the performance of bagging ensembles for data streams through mini-batching. *Inf. Sci.* 580: 260-282, 2021.
12. Rivolli A., Read J., Soares C., Pfahringer B., Carvalho A.C.P.L.F.de: An empirical analysis of binary transformation strategies and base algorithms for multi-label learning. *Machine Learning* 109(8): 1509-1563, 2020.
13. Yogarajan V., Pfahringer B., Mayo M.: A review of Automatic end-to-end De-Identification: Is High Accuracy the Only Metric? *Applied Artificial Intelligence* 34(3): 251-269, 2020.
14. Bravo-Marquez F., Frank E., Pfahringer B., Mohammad S.M.: AffectiveTweets: a Weka Package for Analyzing Affect in Tweets. *Journal of Machine Learning Research* 20: 92:1-92:6, 2019.
15. Barddal J.P., Enembreck F., Murilo-Gomes H., Bifet A., Pfahringer B.: Merit-guided dynamic feature selection filter for data streams. *Expert Systems with Applications* 116: 227-242, 2019.
16. Barddal J.P., Enembreck F., Gomes H.M., Bifet A., Pfahringer B.: Boosting Decision Stumps for Dynamic Feature Selection on Data Streams, *Inf Sys* 83: 13-29, 2019.
17. van Rijn J.N., Holmes G., Pfahringer B., Vanschoren J.: The online performance estimation framework: heterogeneous ensemble learning for data streams. *Machine Learning* 107: 149-176, 2018.
18. Murilo-Gomes H., Bifet A., Read J., Barddal J.P., Enembreck F., Pfahringer B., Holmes G., Abdesslem T.: Adaptive random forests for evolving data stream classification. *Machine Learning* 106(9-10): 1469-1495, 2017.
19. Barddal J.P., Murilo-Gomes H., Enembreck F., Pfahringer B.: A survey on feature drift adaptation: Definition, benchmark, challenges and future directions. *Journal of Systems and Software* 127: 278-294, 2017.
20. Bravo-Marquez F., Frank E., Pfahringer B.: Building a Twitter opinion lexicon from automatically-annotated tweets. *Knowledge-Based Systems* 108: 65-78, 2016.
21. Read J., Reutemann P., Pfahringer B., Holmes G.: MEKA: A multi-label/multi-target extension to WEKA. *Journal of Machine Learning Research* 17, 21, 1-5, 2016.

22. Barddal J.P., Murilo-Gomes H., Enembreck F., Pfahringer B.: A survey on feature drift adaptation: Definition, benchmark, challenges and future directions. *Journal of Systems and Software*, Available online 7 July 2016.
23. Weng M.-H., Utting M., Pfahringer B.: Bound Analysis for Whitley Programs. *Electr. Notes Theor. Comput. Sci.* 320: 53-67, 2016.
24. Torgo L., Branco P., Ribeiro R.P., Pfahringer B.: Resampling strategies for regression. *Expert Systems* 32(3): 465-476, 2015.
25. Zliobaite I., Bifet A., Read J., Pfahringer B., Holmes G.: Evaluation methods and decision theory for classification of streaming data with temporal dependence. *Machine Learning* 98(3): 455-482, 2015.
26. Hapfelmeier A., Pfahringer B., Kramer S.: Pruning Incremental Linear Model Trees with Approximate Lookahead. *IEEE Trans. Knowl. Data Eng.* 26(8): 2072-2076, 2014.
27. Zliobaite I., Bifet A., Pfahringer B., Holmes G.: Active Learning With Drifting Streaming Data. *IEEE Trans. NNLS* 25(1): 27-39, 2014.
28. Sun Q., Pfahringer B.: Pairwise meta-rules for better meta-learning-based algorithm ranking. *Machine Learning* 93(1): 141-161, 2013.
29. Bifet A., Frank E., Holmes G., Pfahringer B.: Ensembles of Restricted Hoeffding Trees, *ACM TIST*, 3, 30, 2012.
30. Read J., Bifet A., Holmes G., Pfahringer B.: Scalable and efficient multi-label classification for evolving data streams, *Machine Learning Journal*, 88, 243-272, 2012.
31. Vanschoren J., Blockeel H., Pfahringer B. and Holmes G.: Experiment databases: A new way to share, organize and learn from experiments, *Machine Learning Journal*, 87, 127-158, 2012.
32. Read J., Pfahringer B., Holmes G. and Frank E.: Classifier chains for multi-label classification, *Machine Learning Journal*, 85, 333-359, 2011.
33. Bifet, A., Holmes, G., Kirkby, R. and Pfahringer B.: MOA: Massive Online Analysis. *Journal of Machine Learning Research* 11, 1601-1604, 2010.
34. Bouckaert, R. R., Frank, E., Hall, M. A., Holmes, G., Pfahringer B., Reutemann, P. and Witten, I. H.: WEKA: Experiences with a Java open-source project. *Journal of Machine Learning Research (JMLR)* 11, 2533-2541, 2010.
35. Hall M., Frank E., Holmes G., Pfahringer B., Peter Reutemann, Ian H. Witten: The WEKA data mining software: an update, *ACM SIGKDD Explorations*, v11, July, pp.10-18., 2009

36. Holmes G., Pfahringer B., Kirkby R.: Robust Hoeffding Trees, *IEEE Journal of Transactions on Knowledge and Data Engineering*, 2006.
37. Holmes G., Pfahringer B., Kirkby R.: Cache Hierarchy Inspired Compression: a Novel Architecture for Data Streams, *Journal of Information Technology in Asia*, submitted, 2006.
38. Blockeel H., Dzeroski S., Kompare B., Kramer S., Pfahringer B., Van Laer W.: Experiments in Predicting Biodegradability, *Journal of Applied Artificial Intelligence*, 18/2, 2004.
39. S. Kramer, G. Widmer, B. Pfahringer, M. De Groeve.: Prediction of Ordinal Classes Using Regression Trees, in *Fundamenta Informaticae*, special issue on ISMIS-2000, 2001
40. Gottmann E., Kramer S., Pfahringer B., Helma C.: Data Quality in Predictive Toxicology Part 2: Reproducibility of Rodent Carcinogenicity Experiments, *Environmental Health Perspectives*, 109(5):509-514, 2001.
41. Kovar K., Fuernkranz J., Petrak J., Pfahringer B., Trappl R., Widmer G.: Searching for Patterns in Political Events Sequences: Experiments with the KEDS Database, *Cybernetics and Systems*, 31(6), 649-671, 2000.
42. Helma C., Kramer S., Pfahringer B., Gottmann E.: Data Quality in Predictive Toxicology Part 1: Identification of Chemical Structures and Calculation of Chemical Descriptors, *Environmental Health Perspectives*, 108:1029-1033, 2000.
43. Porenta G., Pfahringer B., Hoberstorfer M., Trappl R.: A Decision Support System for Village Health Workers in Developing Countries, *Applied Artificial Intelligence*, 2(1)47-63, 1988.
44. Holzbaur C., Pfahringer B.: Synthesis of Hybrid Languages, *Applied Artificial Intelligence*, 1(1)39-52, 1987.
45. Pfahringer B., Holzbaur C.: Mixing Prolog and Lisp, in Trappl R. (ed.), *Cybernetics and Systems '86*, Reidel, Dordrecht/Boston, pp.759-765, 1986.

Article in Non-Refereed Journal

1. Pfahringer B.: The Weka solution to the 2004 KDD Cup. *SIGKDD Explorations* 6(2): 117-119, 2004.
2. Pfahringer B.: Winning the KDD99 Classification Cup: Bagged Boosting, *SIGKDD Explorations*, 1(2), 65-66, 2000.
3. Petta P., Pfahringer B.: Workshop report: "Designing Personalities for Synthetic Actors", *OeGAI Journal*, 14(4), 1995.



4. Trappl R., Porenta G., Pfahringer B.: Medical Expert Systems for Developing Countries: An Application in Primary Health Care, *Microelectronics Monitor*, 28,94-98, 1989.

Edited Special Issue of Journal:

1. Fuernkranz J., Pfahringer B.: Guest Editorial: First-Order Knowledge Discovery in Databases, *Applied Artificial Intelligence*, 12(5), 345-362, 1998.

### 5.7.3 Papers in Conferences

1. Wang H., Frank E., Pfahringer B., Holmes G.: Self-trained Centroid Classifiers for Semi-supervised Cross-domain Few-shot Learning. *Conference on Lifelong Learning Agents*, 481-492, 2023.
2. Lee A., Zhang Y., Gomes H.M., Bifet A., Pfahringer B.: Look At Me, No Replay! SurpriseNet: Anomaly Detection Inspired Class Incremental Learning. *CIKM2023*.
3. Gunasekara N., Pfahringer B., Gomes H.M., Bifet A.: Survey on Online Streaming Continual Learning. *IJCAI 2023*: 6628-6637.
4. Yaqian Zhang, Bernhard Pfahringer, Eibe Frank, Albert Bifet, Nick Jin Sean Lim, Yunzhe Jia: A simple but strong baseline for online continual learning: Repeated Augmented Rehearsal. *NeurIPS 2022*.
5. Chanajitt R., Pfahringer B., Gomes H.M., Yogarajan V.: Multiclass Malware Classification Using Either Static Opcodes or Dynamic API Calls. *Australasian Joint Conference on Artificial Intelligence*, 427-441, 2022.
6. Chanajitt R., Pfahringer B., Gomes H.M.: A Comparison of Neural Network Architectures for Malware Classification Based on Noriben Operation Sequences. *ICANN22*: 428-440.
7. Gunasekara N., Gomes H.M., Bifet A., Pfahringer B.: Adaptive Neural Networks for Online Domain Incremental Continual Learning. *DS 2022*: 89-103.
8. Gunasekara N., Gomes H.M., Bifet A., Pfahringer B.: Adaptive Online Domain Incremental Continual Learning. *ICANN22*: 491-502.
9. Gunasekara N., Gomes H.M., Pfahringer B., Bifet A.: Online Hyperparameter Optimization for Streaming Neural Networks. *IJCNN 2022*: 1-9.
10. Sahito A., Frank E., Pfahringer B.: Better Self-training for Image Classification Through Self-supervision. *AI 2022*: 645-657.
11. Yogarajan V., Montiel J., Smith T., Pfahringer B.: Predicting COVID-19 Patient Shielding: A Comprehensive Study. *AI 2022*: 332-343.

12. Yogarajan V., Pfahringer B., Smith T., Montiel J.: Concatenating BioMed-Transformers to Tackle Long Medical Documents and to Improve the Prediction of Tail-End Labels. ICANN22: 209-221.
13. Zheng C., Pfahringer B., Mayo M.: Alzheimers Disease Detection via a Surrogate Brain Age Prediction Task using 3D Convolutional Neural Networks. IJCNN 2022: 1-8.
14. Yogarajan V., Montiel J., Smith T., Pfahringer B.: Transformers for Multi-label Classification of Medical Text: An Empirical Comparison. International Conference on Artificial Intelligence in Medicine, 114-123, 2021.
15. Ansell A., Bravo-Marquez F., Pfahringer B.: PolyLM: Learning about Polysemy through Language Modeling. EACL: 563-574, 2021.
16. Chanajitt R., Pfahringer B., Murilo-Gomes H.: Combining Static and Dynamic Analysis to Improve Machine Learning-based Malware Classification. DSAA 2021: 1-10, 2021.
17. Jia Y., Frank E., Pfahringer B., Bifet A., Lim N.: Studying and Exploiting the Relationship Between Model Accuracy and Explanation Quality. ECML/PKDD2021: 699-714, 2021.
18. Yogarajan V., Pfahringer B., Smith T., Montiel J.: Predicting COVID-19 Patient Shielding: A Comprehensive Study. AJCAI2021: 332-343, 2021.
19. Attaullah S., Frank E., Pfahringer B.: Better Self-training for Image Classification through Self-supervision. AJCAI2021: 645-657, 2021.
20. Cassales G., Gomes H., Bifet A., Pfahringer B., Senger H.: Improving parallel performance of ensemble learners for streaming data through data locality with mini-batching. 22nd IEEE International Conference on High Performance Computing and Communication, 2020.
21. Bernardo A., Gomes H., Montiel J., Pfahringer B., Bifet A., Della Valle E.: C-SMOTE: Continuous Synthetic Minority Oversampling for Evolving Data Streams. IEEE International Conference on Big Data (Big Data), 483-492, 2020.
22. Wang H., Gouk H., Frank E., Pfahringer B., Mayo M.: A Comparison of Machine Learning Methods for Cross-Domain Few-Shot Learning. Australasian Joint Conference on Artificial Intelligence, 445-457, 2020.
23. Sahito A., Frank E., Pfahringer B.: Transfer of Pretrained Model Weights Substantially Improves Semi-supervised Image Classification. Australasian Joint Conference on Artificial Intelligence, 433-444, 2020.
24. Carnein M., Trautmann H., Bifet A., Pfahringer B.: confStream: Automated Algorithm Selection and Configuration of Stream Clustering Algorithms. LION 2020: 80-95, 2020.

25. Montiel J., Mitchell R., Frank E., Pfahringer B., Abdesslem T., Bifet A.: Adaptive XGBoost for Evolving Data Streams. IJCNN 2020.
26. Gomes H.M., Montiel J., Mastelini S.M., Pfahringer B., Bifet A.: On Ensemble Techniques for Data Stream Regression. IJCNN 2020.
27. Bahri M., Pfahringer B., Bifet A., Maniu S.: Efficient Batch-Incremental Classification Using UMAP for Evolving Data Streams. IDA 2020.
28. Yogarajan V., Gouk H., Smith T., Mayo M., Pfahringer B.: Comparing High Dimensional Word Embeddings Trained on Medical Text to Bag-of-Words for Predicting Medical Codes. ACIIDS 2020.
29. Wicker J., Hua C., Rebello R., Pfahringer B.: XOR-based Boolean Matrix Decomposition, ICDM2019.
30. Peng Y., Koh Y.S., Riddle P., Pfahringer B.: Investigating the effect of novel classes in semi-supervised learning, ACML2019.
31. Gouk H., Pfahringer B., Frank E.: Stochastic Gradient Trees, ACML2019.
32. Gomes H.M., Mello R., Pfahringer B., Bifet A.: Feature Scoring using Tree-Based Ensembles for Evolving Data Streams, IEEE Big Data 2019.
33. Attaullah, Frank E., Pfahringer B.: Semi-Supervised Learning using Siamese Networks, AI2019.
34. Leathart T., Frank E., Pfahringer B., Holmes G.: Ensembles of Nested Dichotomies with Multiple Subset Evaluation, PAKDD2019.
35. Leathart T., Frank E., Pfahringer B., Holmes G.: On Calibration of Nested Dichotomies, PAKDD2019.
36. Gouk H., Pfahringer B., Frank E., Cree M.J.: MaxGain: Regularisation of Neural Networks by Constraining Activation Magnitudes. ECMLPKDD2018, 541-556, 2018.
37. Peng Y., Koh Y.S., Riddle P., Pfahringer B.: Using Supervised Pretraining to Improve Generalization of Neural Networks on Binary Classification Problems. ECMLPKDD2018, 410-425, 2018.
38. Yuan L., Pfahringer B., Barddal J.P.: Iterative subset selection for feature drifting data streams. SAC 2018: 510-517, 2018.
39. Bravo-Marquez F., Frank E., Pfahringer B.: Transferring sentiment knowledge between words and tweets. Web Intelligence 16(4): 203-220, 2018.
40. Zhang E., Robinson R., Pfahringer B.: Deep Representation Learning from EHR. ISMICT 2018, 1-6, 2018.
41. Leathart T., Frank E., Holmes G., Pfahringer B.: Probability Calibration Trees. ACML 2017: 145-160, 2017.

42. Bifet A., Zhang J., Fan W., He C., Zhang J., Qian J., Holmes G., Pfahringer B.: Extremely Fast Decision Tree Mining for Evolving Data Streams. KDD 2017: 1733-1742, 2017.
43. Cerqueira V., Torgo L., Oliveira M., Pfahringer B.: Dynamic and Heterogeneous Ensembles for Time Series Forecasting. DSAA 2017: 242-251, 2017.
44. Branco P., Torgo L., Ribeiro R., Frank E., Pfahringer B., Rau M.M.: Learning Through Utility Optimization in Regression Tasks. DSAA 2017: 30-39, 2017.
45. Weng M.-H., Pfahringer B., Utting M.: Static techniques for reducing memory usage in the C implementation of whiley programs. ACSW 2017: 15:1-15:8, 2017.
46. Gouk H., Cree M., Pfahringer B.: Learning Distance Metrics for Multi-Label Classification. ACML2016: 318-333, 2016.
47. Bravo-Marquez F., Frank E., Mohammad S.M., Pfahringer B.: Determining Word-Emotion Associations from Tweets by Multi-Label Classification. Proceedings of the 2016 IEEE/WIC/ACM International Conference on Web Intelligence (WI'16), 2016.
48. Bravo-Marquez F., Frank E., Pfahringer B.: From opinion lexicons to sentiment classification of tweets and vice versa: a transfer learning approach. Proceedings of the 2016 IEEE/WIC/ACM International Conference on Web Intelligence (WI'16), 2016.
49. Bravo-Marquez F., Frank E., Pfahringer B.: Annotate-Sample-Average (ASA): A New Distant Supervision Approach for Twitter Sentiment Analysis. ECAI 2016: 498-506, 2016.
50. Barddal J.P., Murilo-Gomes H., Enembreck F., Pfahringer B., Bifet A.: On Dynamic Feature Weighting for Feature Drifting Data Streams. ECMLPKDD2016: 2/129-144, 2016.
51. Leathart T., Pfahringer B., Frank E.: Building Ensembles of Adaptive Nested Dichotomies with Random-Pair Selection. ECMLPKDD2016: 2/179-194, 2016.
52. Bravo-Marquez F., Frank E., Pfahringer B.: From Unlabelled Tweets to Twitter-specific Opinion Words. SIGIR 2015: 743-746, 2015.
53. Bifet A., De Francisci Morales G., Read J., Holmes G., Pfahringer B.: Efficient Online Evaluation of Big Data Stream Classifiers. KDD 2015: 59-68, 2015.
54. Sakthithasan S., Pears R., Bifet A., Pfahringer B.: Use of ensembles of Fourier spectra in capturing recurrent concepts in data streams. IJCNN 2015: 1-8, 2015.

55. Bravo-Marquez F., Frank E., Pfahringer B.: Positive, Negative, or Neutral: Learning an Expanded Opinion Lexicon from Emoticon-Annotated Tweets. *IJCAI 2015*: 1229-1235, 2015.
56. van Rijn J.N., Holmes G., Pfahringer B., Vanschoren J.: Having a BLast: meta-learning and heterogeneous ensembles for data streams. *ICDM2015*: 1-6, 2015.
57. Rijn J.van, Pfahringer B., Holmes G. and Vanschoren J.: Algorithm Selection Problem in Stream Mining, *Discovery Science*, 2014.
58. Sun Q., Pfahringer B.: Hierarchical Meta-Rules for Scalable Meta-Learning, *PRICAI 2014*.
59. Ienco D., Bifet A., Pfahringer B., Poncelet P.: Change Detection in Categorical Evolving Data Streams, *SAC2014*, 792–797, 2014.
60. Frank E., Pfahringer B.: Propositionalisation of Multi-instance Data Using Random Forests. *Australasian Conference on Artificial Intelligence* 362-373, 2013.
61. Ienco D., Bifet A., Zliobaite I., Pfahringer B.: Clustering Based Active Learning for Evolving Data Streams. *Discovery Science 2013*: 79-93, 2013.
62. Torgo L., Ribeiro R.P., Pfahringer B., Branco P.: SMOTE for Regression. *EPIA 2013*: 378-389, 2013.
63. Bifet A., Read J., Pfahringer B., Holmes G., Zliobaite I.: CD-MOA: Change Detection Framework for Massive Online Analysis. *IDA 2013*: 92-103, 2013.
64. Sun Q., Pfahringer B., Mayo M.: Towards a Framework for Designing Full Model Selection and Optimization Systems. *MCS 2013*: 259-270, 2013.
65. Bifet A., Read J., Zliobaite I., Pfahringer B., Holmes G.: Pitfalls in Benchmarking Data Stream Classification and How to Avoid Them. *ECML/PKDD (1) 2013*: 465-479, 2013.
66. Seeland M., Kramer S., Pfahringer B.: Model Selection Based Product Kernel Learning for Regression on Graphs, *SAC 2013*, 136-143, 2013.
67. Bifet A., Read J., Pfahringer B., Holmes G.: Efficient Data Stream Classification via Probabilistic Adaptive Windows, *SAC 2013*, 801-806, 2013.
68. Sun Q., Pfahringer B.: Bagging Ensemble Selection for Regression. *Australasian Conference on Artificial Intelligence 2012*, 695-706, 2012.
69. Read J., Bifet A., Pfahringer B., Holmes G.: Batch-Incremental versus Instance-Incremental Learning in Dynamic and Evolving Data. *IDA 2012*, 313-323, 2012.

70. Seeland M., Buchwald F., Kramer S., Pfahringer B.: Maximum Common Subgraph based locally weighted regression. SAC 2012, 165-172, 2012.
71. Wicker J., Pfahringer B., Kramer S.: Multi-label classification using boolean matrix decomposition. SAC 2012, 179-186, 2012.
72. Zliobaite I., Bifet A., Pfahringer B., Holmes G.: Active Learning with Evolving Streaming Data. ECML/PKDD 2011:597-612, 2011.
73. Pfahringer B.: Semi-random Model Tree Ensembles: An Effective and Scalable Regression Method. Australasian Conference on Artificial Intelligence 2011:231-240, 2011.
74. Sun Q., Pfahringer B.: Bagging Ensemble Selection. Australasian Conference on Artificial Intelligence 2011:251-260, 2011.
75. Bifet A., Holmes G., Pfahringer B.: MOA-TweetReader: Real-Time Analysis in Twitter Streaming Data. Discovery Science 2011:46-60, 2011.
76. Bifet A., Holmes G., Pfahringer B., Read J., Kranen P., Kremer H., Jansen T., Seidl T.: MOA: A Real-Time Analytics Open Source Framework. ECML/PKDD 2011:617-620, 2011.
77. Bifet A., Holmes G., Pfahringer B., Ricard Gavaldà: Mining frequent closed graphs on evolving data streams. KDD 2011:591-599, 2011.
78. Kremer H., Kranen P., Jansen T., Seidl T., Bifet A., Holmes G., Pfahringer B.: An effective evaluation measure for clustering on evolving data streams. KDD 2011:868-876, 2011.
79. Sarjant S., Pfahringer B., Driessens K., Smith T.: Using the online cross-entropy method to learn relational policies for playing different games. CIG 2011: 182-189, 2011.
80. Bifet, A., Frank, E., Holmes, G. and Pfahringer B.: Accurate ensembles for data streams: combining restricted Hoeffding trees using stacking. Sugiyama, M. and Yang, Q. (eds), Proc Second Asian Conference on Machine Learning (ACML2010), JMLR: Workshop and Conference Proceedings 13, Tokyo, Japan, 225-240. JMLR, 2010.
81. Bifet, A., Holmes, G. and Pfahringer B.: Leveraging bagging for evolving data streams. Balczar, J. L., Bonchi, F., Gionis, A., et al. (eds), Proc European Conference on Machine Learning and Knowledge Discovery in Databases 2010 (ECML PKDD 2010), Part I, LNAI 6321, Barcelona, Spain, 135-150, 2010.
82. Bifet, A., Holmes, G., Pfahringer B. and Frank, E.: Fast perceptron decision tree learning from evolving data streams. Zaki, M. J., Yu, J. X., Ravindran, B., et al. (eds), Proc Fourteenth Pacific-Asia Conference on Advances in Knowledge Discovery and Data Mining (PAKDD 2010), LNCS 6119, Hyderabad, India, 299-310, 2010.

83. Read J., Pfahringer B., Holmes G., Frank E.: Classifier chains for multi-label classification, ECML/PKDD 2009, Bled, Slovenia, 2009.
84. Bouckaert R., Holmes G., Pfahringer B., Fletcher D.: Gaussian processes on graphics cards for NIRS, NIR2009, Bangkok, Thailand, 2009.
85. Bifet A., Holmes G., Pfahringer B., Ricard Gavaldà: Improving adaptive bagging methods for evolving data streams, ACML2009, Nanjing, China, 2009.
86. Pfahringer B., Fletcher D., Bouckaert R., Holmes G.: Random model trees: a competitive off-the-shelf technology for NIRS, NIR2009, Bangkok, Thailand, 2009.
87. Mutter S., Pfahringer B., Holmes G.: The positive effects of negative information: extending one-class classification models in binary proteomic sequence classification, AI2009, Melbourne, Australia, 2009.
88. Bifet A., Holmes G., Pfahringer B., Kirkby R., Ricard Gavaldà: New Ensemble Methods for Evolving Data Streams. KDD2009, Paris, France, 2009.
89. Anderson G. and Pfahringer B.: Relational Random Forests based on Random Relational Rules, IJCAI2009, Pasadena, California, USA, 2009.
90. Mutter S., Pfahringer B., Holmes G.: Propositionalisation of Profile Hidden Markov Models for Biological Sequence Analysis. Australasian Conference on Artificial Intelligence 2008: 278-288, 2008.
91. Wu X., Holmes G., Pfahringer B.: Mining Arbitrarily Large Datasets Using Heuristic k-Nearest Neighbour Search. Australasian Conference on Artificial Intelligence 2008: 355-361, 2008.
92. Read J., Pfahringer B., Holmes G.: Multi-label Classification Using Ensembles of Pruned Sets. ICDM 2008: 995-1000, 2008.
93. Vanschoren J., Blockeel H., Pfahringer B., Holmes G.: Organizing the World's Machine Learning Information. ISoLA 2008: 693-708, 2008.
94. Vanschoren J., Pfahringer B., Holmes G.: Learning from the Past with Experiment Databases. PRICAI 2008: 485-496, 2008.
95. Pfahringer B., Holmes G., Kirkby R.: Handling Numeric Attributes in Hoeffding Trees. PAKDD2008, Osaka, Japan, 2008.
96. Anderson G. and Pfahringer B.: Exploiting Propositionalization based on Random Relational Rules for Semi-Supervised Learning, PAKDD2008, Osaka, 2008.

97. Pfahringer B., Leschi C., Reutemann P.: Scaling Up Semi-supervised Learning: An Efficient and Effective LLGC Variant. PAKDD 2007: 236-247, 2007.
98. Pfahringer B., Holmes G., Kirkby R.: New Options for Hoeffding Trees. Australian Conference on Artificial Intelligence 2007: 90-99, 2007.
99. Anderson G. and Pfahringer B.: Clustering Relational Data based on Randomized Propositionalization, in Proceedings of the 17th International Conference on Inductive Logic Programming (ILP 2007), Corvallis, Oregon, USA, June 19-21, 2007.
100. Anderson G. and Pfahringer B.: Random Relational Rules, in Proceedings of the 16th International Conference on Inductive Logic Programming (ILP 2006), Santiago de Compostela, Spain, August 24-27, 2006.
101. Frank E. and Pfahringer B.: Improving on bagging with input smearing, in Proc 10th Pacific-Asia Conference on Knowledge Discovery and Data Mining, Singapore. Springer, 2006.
102. Driessens K., Reutemann P., Pfahringer B., and Leschi C.: Using weighted nearest neighbor to benefit from unlabeled data, in Wee Keong Ng, Masaru Kitsuregawa, Jianzhong Li, and Kuiyu Chang, editors, Advances in Knowledge Discovery and Data Mining, 10th Pacific-Asia Conference, PAKDD 2006, volume 3918 of LNCS, pages 60-69, 2006.
103. Holmes G., Kirkby R., Pfahringer B.: Stress-testing Hoeffding Trees, 9th European Conference on Principles and Practice of Knowledge Discovery in Databases (PKDD05) Porto, Portugal, 2005
104. Holmes G., Pfahringer B., Kirkby R.: Cache Hierarchy Inspired Compression: a Novel Architecture for Data Streams, Fourth International Conference on IT in Asia (CITA05), Kuching, Malaysia, 2005
105. Li M., Holmes G., Pfahringer B.: Clustering Large Datasets Using Cobweb and K-means in Tandem 17th Australian Joint Conference on Artificial Intelligence, Cairns, 2004
106. Reutemann P., Pfahringer B., Frank E.: A Toolbox for Learning from Relational Data with Propositional and Multi-Instance Learners, 17th Australian Joint Conference on Artificial Intelligence, Cairns, 2004
107. Kibriya A.M., Frank E., Pfahringer B., Holmes G.: Multinomial Naive Bayes for Text Categorization Revisited 17th Australian Joint Conference on Artificial Intelligence, Cairns, 2004
108. A.J. Wilson, M.P. Morgenstern, B Pfahringer, C Leschi. Data mining bread quality and process data in a plant bakery. Proceedings of the 12th ICC Cereal & Bread Congress, May 2004, Harrogate UK. Ed S. P. Cauvain, S. E. Salmon, L. S. Young, 2004.



109. Frank E., Hall M., Pfahringer B.: Locally Weighted Naive Bayes, Nineteenth Conference on Uncertainty in Artificial Intelligence (UAI2003)
110. Weidmann N., Frank E., Pfahringer B.: A Two-Level Learning Method for Generalized Multi-instance problems, Fourteenth European Conference on Machine Learning (ECML2003)
111. Sauban M., Pfahringer B.: Text Classification using Document Profiling, Seventh European Conference on Principles and Practice of Knowledge Discovery in Databases (PKDD2003)
112. Pfahringer B., Holmes G.: Propositionalization through Stochastic Discrimination 13th International Conference on Inductive Logic Programming (ILP2003)
113. Holmes G., Pfahringer B., Kirkby R., Frank E., Hall M.: Multiclass Alternating Decision Trees, ECML, 2002
114. Pfahringer B., Holmes G., Schmidberger G.: Wrapping Boosters against Noise, Fourteenth Australian Joint Conference on Artificial Intelligence (AI'01), 2001
115. Pfahringer B., Holmes G., Kirkby R.: Optimizing the Induction of Alternating Decision Trees, in Cheung D., Williams G.J., Li Q. (eds.), Proceedings of the Fifth Pacific-Asia Conference on Advances in Knowledge Discovery and Data Mining (PAKDD2001), Springer, 2001
116. Pfahringer B., Bensusan H., Giraud-Carrier C.: Meta-Learning by Landmarking Various Learning Algorithms, in Langley P. (ed.), Proceedings of the 17th International Conference on Machine Learning (ICML-2000), Morgan Kaufmann, Los Altos/Palo Alto/San Francisco, 2000.
117. Fuernkranz J., Pfahringer B., Kaindl H., Kramer S.: Learning to Use Operational Advice, in Horn W. (ed.), ECAI 2000. Proceedings of the 14th European Conference on Artificial Intelligence, IOS, Amsterdam, pp.291-295, 2000
118. Kramer S., Widmer G., Pfahringer B., DeGroeve M.: Prediction of Ordinal Classes Using Regression Trees, in Proceedings of the 12th International Symposium on Methodologies for Intelligent Systems (ISMIS'2000), Charlotte, N.C., 2000.
119. Helma C., Gottmann E., Kramer S., Pfahringer B.: The Application of Machine Learning Algorithms to Detect Chemical Properties Responsible for Carcinogenicity. in: Gundertofte K, Jorgensen FS (Eds.): Molecular Modeling and Prediction of Bioactivity, Kluwer Academic/Plenum Publishers, New York, pp 464-466, 2000.

120. Dzeroski S., Blockeel H., Kompare B., Kramer S., Pfahringer B., Van Laer W.: Experiments in Predicting Biodegradability, in Dzeroski S. and Flach P. (eds.): Inductive Logic Programming (ILP-99), Springer, 1999.
121. Pfahringer, B., Gottmann, E., Kramer, S., Helma, C.: Representational/Efficiency Issues In Toxicological Knowledge Discovery, in Proceedings of the AAAI Spring Symposium 1999 on Predictive Toxicology, Stanford, March 1999.
122. Helma, C., Gottmann, E., Kramer, S., Pfahringer, B.: Data Quality Issues In Toxicological Knowledge Discovery, in Proceedings of the AAAI Spring Symposium 1999 on Predictive Toxicology, Stanford, March 1999.
123. Helma, C., Kramer, S., Pfahringer, B.: Carcinogenicity Prediction for Noncongeneric Compounds: Experiments with the Machine Learning Program SRT and Various Sets of Chemical Descriptors, in: Proceedings 12th European Symposium on Quantitative Structure-Activity Relationships, 1998.
124. Kramer S., Pfahringer B., Helma C.: Stochastic Propositionalization of Non-Determinate Background Knowledge, in Page D.(ed.): Inductive Logic Programming (ILP98), Springer, Berlin/Heidelberg/New York/Tokyo, 1998.
125. Pfahringer B., Kramer S.: Discovering Compressive Partial Determinations in Mixed Numerical and Symbolic Domains, in Trappl R.(ed.), Cybernetics and Systems '98: Proc. of 14th European Meeting on Cybernetics and Systems Research, Austrian Society for Cybernetic Studies, Vienna, pp.884-889, 1998.
126. Kramer S., Pfahringer B., Helma C.: Mining for Causes of Cancer: Machine Learning Experiments at Various Levels of Detail, Proc. of 3rd International Conference on Knowledge Discovery and Data Mining (KDD97), AAAI Press, Menlo Park, 1997.
127. Pfahringer B.: Compression-Based Pruning of Decision Lists, in Someren M.van and Widmer G.(eds.), European Conference on Machine Learning (ECML97), Springer, Berlin/Heidelberg/New York/Tokyo, pp.199-212, 1997.
128. Kramer S., Pfahringer B.: Efficient Search for Strong Partial Determinations, in Simoudis E. and Han J.(eds.), KDD-96: Proceedings Second International Conference on Knowledge Discovery & Data Mining, AAAI Press/MIT Press, Cambridge/Menlo Park, pp.371-374, 1996.
129. Pfahringer B.: Compression-Based Discretization of Continuous Attributes, in Prieditis A. and Russell S.(eds.), Proceedings of the 12th International Conference on Machine Learning (ICML'95), Morgan Kaufmann, Los Altos/Palo Alto/San Francisco, 1995.

130. Pfahringer B.: A New MDL Measure for Robust Rule Induction (Extended Abstract), in Lavrac N. and Wrobel S.(eds.), Machine Learning: ECML-95, Springer, Berlin/Heidelberg/New York/Tokyo, pp.331-334, 1995.
131. Pfahringer B., Kramer S.: Compression-Based Evaluation of Partial Determinations, Proc. of 1st International Conference on Knowledge Discovery and Data Mining (KDD-95), Montreal, Canada, 1995.
132. Pfahringer B.: Controlling Constructive Induction in CiPF: An MDL Approach, in Bergadano F. and Raedt L.de(eds.), Machine Learning: ECML-94, Springer, pp.242-256, 1994.
133. Pfahringer B.: Robust Constructive Induction, in Nebel B. and Dreschler-Fischer L.(eds.), KI-94: Advances in Artificial Intelligence, Springer, pp.118-129, 1994.
134. Buchberger E., Garner E., Heinz W., Matiasek J., Pfahringer B.: VIE-DU - Dialogue by Unification, in Kaindl H.(ed.), 7.Oesterreichische Artificial-Intelligence-Tagung, Springer, Berlin/Heidelberg/New York/Tokyo, pp.42-51, 1991.
135. Pfahringer B.: Constraintpropagation in Qualitative Modelling: Domain Variables Improve Diagnostic Efficiency Proc. AISB-91, pp. 129-135, Leeds, UK, April 16-19, 1991, Springer-Verlag.
136. Pfahringer B.: Extending Explanation-Based Generalization, in Retti J. and Leidlmair K.(eds.), 5.Oesterreichische Artificial-Intelligence-Tagung, Springer, Berlin/Heidelberg/New York/Tokyo, pp.149-153, 1989.
137. Porenta G., Binder T., Pfahringer B., Anvari A., Weber H.: Antiarrhythmic Strategies: A Knowledge Based System for Exploring Clinical Data, Pacing and Clinical Electrophysiology, 11(6)II (Proc.Cardiostim 88, Monaco), 1988.
138. Horn W., Imhof H., Pfahringer B., Salomonowitz E.: A Radiological Expert System for the PC - Design and Implementation Issues, in Fox J., et al.(eds.), Proceedings of the European Conference on Artificial Intelligence in Medicine (AIME-87), Springer, Berlin/Heidelberg/New York/Tokyo, pp.169-176, 1987.
139. Imhof H., Horn W., Pfahringer B.: Computerunterstützte radiologische Nierendiagnostik - Anwendung eines Expertensystems, Proc. of 5.Grazer radiologisches Symposium, Springer, Berlin, 1987.
140. Porenta G., Pfahringer B., Binder T., Rimpfl T., Norman G., Weber H.: A Decision Support System for Selecting and Assessing Antiarrhythmic Therapies, Proc. of Computers in Cardiology 1987, IEEE, Washington, DC, 1987.

141. Hoberstorfer M., Pfahringer B., Porenta G., Trappl R.: Ein medizinisches Expertensystem am PC: Entscheidungsunterstützung fuer einen Village Health Worker in Entwicklungslaendern, in Rappelsberger P., et al.(eds.), Medizinische Informatik '86, Oldenbourg, pp.347-350, 1986.
142. Horn W., Pfahringer B., Imhof H., Salomonowitz E.: Ein entscheidungsunterstützendes Expertensystem fuer die Radiodiagnostik, in Rappelsberger P., et al.(eds.), Medizinische Informatik '86, Oldenbourg, 1985.
143. Pfahringer B., Holzbaur C.: VIE-KET: Frames + Prolog, in Trost H. and Retti J.(eds.), Oesterreichische Artificial Intelligence-Tagung, Springer, Berlin/Heidelberg/New York/Tokyo, pp.132-139, 1985.

#### 5.7.4 Workshop papers

1. Ansell A., Bravo-Marquez F., Pfahringer B.: An ELMO-inspired approach to SemDeep-5's Word-in-Context task. SemDeep@IJCAI 2019: 21-25.
2. Weng M.-H., Utting M., Pfahringer B.: Bound Analysis for Whiley Programs. Electr. Notes Theor. Comput. Sci. 320: 53-67, 2016.
3. van Rijn J.N., Holmes G., Pfahringer B., Vanschoren J.: Towards Meta-learning over Data Streams. MetaSel@ECAI 2014: 37-38, 2014.
4. Ienco D., Zliobaite I., Pfahringer B.: High density-focused uncertainty sampling for active learning over evolving stream data. BigMine 2014: 133-148, 2014.
5. Bifet A., Holmes G., Pfahringer B., Gavaldà R.: Detecting Sentiment Change in Twitter Streaming Data. WAPA 2011: 5-11, 2011.
6. Read J., Albert Bifet A., Holmes G., Pfahringer B.: Streaming Multi-label Classification. WAPA 2011: 19-25, 2011.
7. Zliobaite I., Bifet A., Holmes G., Pfahringer B.: MOA Concept Drift Active Learning Strategies for Streaming Data. WAPA 2011: 48-55, 2011.
8. Pfahringer B.: A semi-supervised spam mail detector, Discovery Challenge Workshop, ECML/PKDD 2006.
9. Pfahringer B., Reutemann P., Mayo M.: A novel two stage scheme utilizing the test set for model selection in text classification. The 18th Australian Joint Conference on Artificial Intelligence. Australia, University of Technology, Sydney, Sydney, Australia, 5-9 December, 2005.
10. Holmes G., Kirkby R., Pfahringer B.: Tie-Breaking in Hoeffding Trees, Second International Workshop on Knowledge Discovery from Data Streams, Porto, Portugal, 2005

11. G. Holmes, R. Kirkby, B. Pfahringer.: Mining Data Streams using Option Trees. Workshop on Knowledge Discovery in Data Streams, 15th European Conference on Machine Learning (ECML), Pisa, 2004
12. Pfahringer B., Holmes G., Wang C.: Millions of Random Rules, Workshop on Advances in Inductive Rule Learning, 15th European Conference on Machine Learning (ECML), Pisa, 2004
13. Pfahringer B.:Data Mining Challenge Problems: any Lessons Learned? ICML Workshop DDL, 2002
14. Clayton R., Cleary J.G., Pfahringer B., Utting M.: Optimizing Tabling Structures for Bottom-Up Logic Programming, International Workshop on Logic Based Program Development and Transformation (LOPSTR), 2002
15. Pfahringer B.: (The Futility of) Trying to Predict Carcinogenicity of Chemical Compounds, The Predictive Toxicology Challenge Workshop, Twelfth European Conference on Machine Learning (ECML2001), Freiburg, 2001.
16. Pfahringer B., Kaindl H., Kramer S., Fuernkranz J.: Learning to Make Good Use of Operational Advice, in Proceedings of the ICML-99 Workshop on Machine Learning in Game Playing, Bled, Slovenia, 1999
17. Pfahringer B.: Compression-Based Feature Subset Selection, in Turney P.(ed.), IJCAI-95 Workshop on Data Engineering for Inductive Learning, IJCAI'95 Workshop Program Working Notes, Montreal, Canada, 1995.
18. Pfahringer B.: CiPF 2.0: A Robust Constructive Induction System, Proc. of Workshop on Constructive Induction and Change of Representation, 11th International Conference on Machine Learning (ML-94/COLT-94), 1994.
19. Pfahringer B.: The Logical Way to Build a DL-based KR System, in MacGregor R., Issues in Description Logics: Users Meet Developers, AAAI Symposium Working Notes, 1992.
20. Pfahringer B.: Theory Unification: Use and Support (Abstract), in Nebel B., et al., International Workshop on Terminological Logics, Dagstuhl-Seminar-Report, 12 (9119), 1991.

#### 5.7.5 Edited volume of Conference or Workshop Proceedings

1. Pfahringer B. and Renz J. (Eds.): AI 2015: Advances in Artificial Intelligence, Springer, 2015.
2. Pfahringer B., Holmes, G. and Hoffmann, A. (Eds.): Discovery Science: Thirteenth International Conference, DS 2010 Proceedings, LNAI 6332. Canberra, Australia, 1-384. Springer, Germany, 2010.

3. Kramer S., Pfahringer B. (Eds.): Inductive Logic Programming, 15th International Conference, ILP2005, LNAI 3625
4. Kramer S., Pfahringer B. (Eds.): Late-breaking papers, Inductive Logic Programming, 15th International Conference, ILP2005, TUM-I0510, Technische Universität München
5. Giraud-Carrier C., Pfahringer B.(Eds.): Proceedings of the ICML-99 Workshop on Recent Advances in Meta-Learning and Future Work, Bled, Slovenia, 1999.
6. Pfahringer B., Fuernkranz J.(Eds.): Proceedings of the MLnet Familiarization Workshop on Data Mining with Inductive Logic Programming (ILP for KDD), Bari, Italy., 1996.

### 5.8 Technical reports (not quality assured)

1. Pfahringer B.: Sampling, ROC curves, and the Imbalanced Classes Problem, Working Paper, 2004
2. Holmes G., Kirkby R., Pfahringer B.: Batch-Incremental Learning for Mining Data Streams, Working Paper, 2004
3. Holmes G., Pfahringer B., Kirkby R.: Mining Data Streams using Option Trees, Working paper 08/03, 2003
4. Clayton R., Cleary J., Pfahringer B., Utting M.: Intermediate Language for Tabling, working paper, 2001
5. Pfahringer B.: Inducing Small and Accurate Decision Trees, TR-98-09, Oesterreichisches Forschungsinstitut fuer Artificial Intelligence, Wien, 1998.
6. Widmer G., Kramer S., Pfahringer B., DeGroeve M.: Predicting Ordinal Classes in ILP, TR-98-08, Oesterreichisches Forschungsinstitut fuer Artificial Intelligence, Wien, 1998.
7. Pfahringer B.: On the Induction of Intelligible Ensembles, TR-97-30, Oesterreichisches Forschungsinstitut fuer Artificial Intelligence, Wien, 1997.
8. Pfahringer B., Witten I.H.: Improving Bagging Performance by Increasing Decision Tree Diversity, TR-97-31, Oesterreichisches Forschungsinstitut fuer Artificial Intelligence, Wien, 1997.
9. Pfahringer B.: A Multi-Agent Approach to Open Shop Scheduling: Adapting the Ant-Q Formalism, Oesterreichisches Forschungsinstitut fuer Artificial Intelligence, Wien, TR-96-09, 1996.
10. Pfahringer B.: OFAI Publishing Rules: A Case Study in Information Agents, Oesterreichisches Forschungsinstitut fuer Artificial Intelligence, Wien, TR-96-08, 1996.

11. Pfahringer B.: Evolving Good TSP Tours by Means of Heuristic Repair and Strong Crowding, Oesterreichisches Forschungsinstitut fuer Artificial Intelligence, Wien, TR-95-33, 1995.
12. Pfahringer B.: CLP(gRel): Explicit Manipulation of (ground) Relational Dependencies in Logic Programming, TR-92-03, Oesterreichisches Forschungsinstitut fuer Artificial Intelligence, Wien, 1992.
13. Pfahringer B.: How to Integrate Specialized Solvers: A CLP Approach, TR-92-31, Oesterreichisches Forschungsinstitut fuer Artificial Intelligence, Wien, 1992.
14. Pfahringer B.: Unifikationserweiterungen: Vergleich und moegliche Nutzung in der Wissensrepraesentation anhand ausgewaehlter Beispiele, TR-92-30, Oesterreichisches Forschungsinstitut fuer Artificial Intelligence, Wien, 1992.
15. Pfahringer B., Matiasek J.: A CLP Schema to Integrate Specialized Solvers and its Application to Natural Language Processing, TR-92-37, Oesterreichisches Forschungsinstitut fuer Artificial Intelligence, Wien, 1992.
16. Buchberger E., Garner E., Heinz W., Matiasek J., Pfahringer B.: VIE-DU - A Second Generation Dialogue System, TR-91-04, Oesterreichisches Forschungsinstitut fuer Artificial Intelligence, Wien, 1991.
17. Pfahringer B.: Integrating Definitions and Defaults, Oesterreichisches Forschungsinstitut fuer Artificial Intelligence, Wien, TR-89-8, 1989.
18. Porenta G., Binder T., Pfahringer B., Anvari A., Weber H.: Evaluating Antiarrhythmic Strategies: A Knowledge-Based System for Exploring Clinical Data, Institut fuer Med.Kybernetik u. AI, Universitaet Wien, Bericht 88-04, 1988.
19. Trost H., Pfahringer B.: VIE-KL: An Experiment in Hybrid Knowledge Representation, Oesterreichisches Forschungsinstitut fuer Artificial Intelligence, Wien, TR-88-8, 1988.
20. Hoberstorfer M., Horn W., Pfahringer B., Porenta G., Trappl R., Widmer G.: Medizinische Expertensysteme am PC: Zwei Implementierungen fuer Industrie- und Entwicklungslaender, Berichte der Oesterreichischen Studiengesellschaft fuer Kybernetik, Wien, 1986.

## 5.9 Thesis

1. Pfahringer B.: Practical Uses of the Minimum Description Length Principle in Inductive Learning, Doctoral thesis, Department for Medical Cybernetics and AI, University of Vienna, 1995.
2. Pfahringer B.: VIENNA Knowledge Engineering Tool - Der Frame Teil, Diploma thesis, Department for Medical Cybernetics and AI, University of Vienna, 1985.

## 5.10 Other presentations

1. Bifet A., Pfahringer B.: Hands-on Tutorial on Massive Online Analytics. At KDD 2017 (August 15, Halifax, Canada).
2. Witten I.H., Frank E., Pfahringer B., Hall M.: Inside WEKA – and Beyond the Book, Tutorial at ICML 2002.
3. Pfahringer B.: Introduction to Data Mining, New Zealand Statistical Association, Data Mining Workshop 2002
4. Helma, C., Gottmann, E., Pfahringer, B., Kramer, S.: Extraction of Structure-Activity Relationships for Biodegradability and Mutagenicity of Non-Congeneric Compounds Using Structural Regression Trees. Presentation at the American Chemical Society (ACS) Symposium on Data Mining Chemical Information Databases, 1999.

## 5.11 Software

- Ongoing contributions to the Moa Data Stream Mining suite.
- Ongoing contributions to the Weka Machine Learning suite.

## 5.12 Data Mining competition and prizes

- 2009 PAKDD 2<sup>nd</sup> place: credit card default prediction challenge
- 2006 ECML/PKDD Challenge, Creativity Award, and tied for 1<sup>st</sup> place classification award
- 2005 ACM SIGKDD service award for the Weka team
- 2004 Winning entry for the 2004 KDD Cup protein prediction task
- 2003 2<sup>nd</sup> place in the EUNITE competition on 'Prediction of glass production quality'
- 1999 Winner of the KDD'99 classifier contest
- 1998 Honourable mention in the KDD'98 classifier contest
- 1994 Winner of the Inductive Learning Competition "New East-West Challenge"