Prof. Dr. Hervé BOURLARD

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1. Education

1982: Electrical and Computer Science Engineering,
    Faculté Polytechnique of Mons, Mons, Belgium
1992: PhD in Applied Sciences,
    Faculté Polytechnique of Mons, Mons, Belgium

2. Short Biography

Hervé Bourlard is Director of the IDIAP Research Institute (http://www.idiap.ch), a not-for-profit research institute, affiliated with the Swiss Federal Institute of Technology at Lausanne (EPFL, http://www.epfl.ch) and University of Geneva, involved in speech and speaker recognition, computer vision, machine learning, and multimodal interfaces. H. Bourlard is also Professor at EPFL, Founding Director of a National Centre of Competence in Research (NCCR) on "Interactive Multimodal Information Management" (IM2, http://www.im2.ch), and an External Fellow of the International Computer Science Institute (ICSI, http://www.icsi.berkeledy.edu) at Berkeley (CA).

His current interests mainly include statistical pattern classification, signal processing, multi-channel processing, artificial neural networks, and applied mathematics, with applications to a wide range of Information and Communication Technologies, including spoken language processing, speech and speaker recognition, language modelling, multimodal interaction, augmented multi-party interaction, and distant group collaborative environments.

H. Bourlard is the author/co-author of over 330 reviewed papers (including one IEEE best paper award) and book chapters, three books, and five edited books. He is a Fellow of the IEEE "for contributions in the fields

of statistical speech recognition and neural networks" and a Fellow of International Speech Communication Association (ISCA) "for his fundamental contributions to research and leadership in the fields of statistical and neural network-based speech recognition." He is also a member of the Board of Trustees of the Intl. Computer Science Institute (Berkeley, CA), a member of the Advisory Council of ISCA (International Speech Communication Association), ex-member of the IEEE Technical Committee on Neural Networks Signal Processing, and an appointed expert for the European Commission (and ex-member of the EU Information Society Technology Advisory Group-ISTAG).

He is (or has been) a member of the program/scientific committees of numerous international conferences (e.g., General Chairman of IEEE Workshop on Neural Networks for Signal Processing 2002, Co-Technical Chairman of IEEE ICASSP 2002, General Chairman of Interspeech 2003) and on the Editorial Board of several journals (e.g., past co-Editor-in-Chief of "Speech Communication"). H. Bourlard is, or has been, a member of the program and/or scientific committee of numerous international conferences, including co-Technical Chairman of the IEEE-ICASSP'02, General Chairman of IEEE-NNSP'02 and Interspeech'03. He is also member of the Editorial Board of several journals, including "Speech Communication" (ex-Editor-in-Chief), "Intl. Journal of Pattern Recognition and Artificial Intelligence, and "Journal of Multimodal User Interfaces" (Springer). He was also the Guest Editor of several Special Issues, including Biometric Signal Processing of the Eurasip Journal on Applied Signal Processing (April 2004); IEEE Signal Processing Magazine, Special Issue on "Mobile Media Search" (2012); IEEE Signal Processing Magazine, Special Issue on "Signal and Information Processing for Social Learning and Networking" (2012).

Having worked for academia as well as large and small industries, Hervé Bourlard has broad and deep experience in both the industrial and academic worlds. He has initiated and managed many national and international projects (with US, EU and CH public funding agencies, as well as industry). Among recent EU projects, he initiated and coordinated large Integrated Projects like AMI (Augmented Multiparty Interaction), AMIDA (Augmented Multiparty Interaction with Distance Access), or STREPs like inEvent (Accessing Dynamic Networked Multimedia Event). He also initiated several start-up companies, and is the recipient of a few prestigious entrepreneurship awards.

Hervé Bourlard is also a Member of the Swiss Academy of Engineering Sciences (www.satw.ch) , and an elected member of the ACM Europe Council (http://europe.acm.org).

Scientific Records & Indicators (as of 15 November 2016)

- Peer reviewed publications (all available on request, many of them available through http://publications.idiap.ch/index.php or https://infoscience.epfl.ch/:
    - 9 books (author, co-author, or editor)
    - 29 book chapters
    - 60 refereed journal papers
    - 250+ refereed conference papers

- GoogleScholar indicators (https://scholar.google.com/citations?user=cmC2pp0AAAAJ&hl=en)
    - H-index: 57
    - Number of citations: 12'816

3. Professional Experience

Scientific Indicators & Community Recognition

- Google Scholar h-index: 57**;** number of citations: 12816
- Peer reviewed publications: 2 books, 6 edited books, 29 book chapters, 60 refereed journal papers, 250+ refereed conference papers
- Fellow of the IEEE "for contributions in the fields of statistical speech recognition and neural networks"
- Fellow of International Speech Communication Association (ISCA) "for his fundamental contributions to research and leadership in the fields of statistical and neural network-based speech recognition"
- ACM Senior member
- Elected Member of the ACM Europe Council
- Elected Individual Member of the Swiss Academy of Engineering Sciences ("in recognition of his contribution to the development of Information Technologies, and promotion of the technological and scientific Swiss positioning")

Current activities

2010- : Co-Founder and Board Member of Koemei SA (http://www.koemei.com)

2008- : Member of the Foundation Council of the Dalle Molle Foundation (http://www.dallemolle.ch)

2006- : Member (Vice-President) of the Board of Directors of IdeArk SA (http://www.ideark.ch), one of the IDIAP spin-offs focusing on technology transfer activities.

2002- : Interactive Multimodal Information Management (IM2), http://www.im2.ch, Director , National Centre of Competence in Research (NCCR)

2002- : Intl. Computer Science Institute (ICSI), Berkeley, CA, http://www.icsi.berkeley.edu, External Fellow and Member of the Board of Trustees

1997- : Swiss Federal Institute of Technology at Lausanne (EPFL), http://www.epfl.ch, Switzerland, Full Professor, Director of LIDIAP Laboratory, http://idiap.epfl.ch

1996- : Idiap Research Institute (IDIAP), http://www.idiap.ch, Switzerland, Director

Past activities

1991-2002: Intl. Computer Science Institute (Berkeley, CA), External Fellow

1995-1996: Faculté Polytechnique of Mons, Mons, Belgium, Project Leader

1990-1994: L&H Speech Products, Belgium, R&D Manager

1988-1989: Intl. Computer Science Institute (ICSI), Berkeley, CA, http://www.icsi.berkeley.edu Invited Scientist

1982-1990: MBLE-Philips Research Laboratory of Brussels, Belgium, Member of the Scientific Staff (Research Scientist)

4. Professional Activities and Awards (selected)

- 2016-: Member of the Swiss Academy of Engineering Sciences
- 2015-: Member of the ACM Europe Council
- 2011-2013: listed (for 3 years in a row) among the "300 most influential personalities in Switzerland" by the Swiss economic journal "Bilan".
- Senior Member of ACM (Association for Computing Machinery), since April 2009.
- From 2002 to 2007: Member of the European Information Society Technology Advisory Group (ISTAG).
- Recipient of a few prestigious entrepreneurship awards.
- Fellow of the IEEE ("For contributions to the fields of statistical speech recognition and neural networks"), since January 2000.
- International Speech Communication Association (ISCA) Fellow "For contributions to research and leadership in the fields of statistical and neural network-based speech recognition", August 2013
- Fellow of the EPSRC College, EPSRC, UK
- Expert for the Science Foundation Ireland (SFI)
- "One of the 20 Scientists Who Make Switzerland": In the Issue No. 15, dated September 9, 2009, the Bilan magazine, one of the leading Swiss economic journals, nominated Hervé Bourlard as one of the 20 scientific research leaders "who make Switzerland".
- March 2005: Belgian "Christoffel Plantin" Award, annually granted to a *"Belgian citizen, living abroad and whose cultural, artistic or scientific activities contribute to 'Belgian prestige' in foreign countries"*.
- December 2004: Nominated "Entrepreneur of the Year" for Valais/Switzerland by the newspapers "Le Nouvelliste" and the "Walliser Bote", as well as by the "Chambre Valaisanne de Commerce et de l'Industrie".
- 2002: Nominee of the Ernst and Young entrepreneurship award
- International Computer Science Institute (ICSI), Berkeley: Member of the ICSI Board of Trustees (since January 2002); ICSI External Fellow since 1991; ICSI invited guest scientist (1988-1989).
- Member of the European Information Society Technology Advisory Group (ISTAG, http://cordis.europa.eu/ist/istag.htm): from 2003 to 2007.
- Fellow of the ESPRC (Engineering and Physical Sciences Research Council) Peer Review College, UK: since January 2003.
- Editor-in-chief of "Speech Communication" (international journal about speech processing), Elsevier, North-Holland (from 1997 to 2001); now Associate Editor.
- Associate Editor of the Intl. Journal of Pattern Recognition and Artificial Intelligence, World Scientific (since 1998).
- Editor of "Journal of Multimodal User Interfaces" (Springer)
- Action Editor of "Neural Networks" (Pergamon), the official journal of the international Neural Network Society (from 1998 to 2002)
- Editor of the "Journal on Multimodal User Interfaces", Springer and *OpenInterface* Association.
- Member of the IEEE Technical Committee on Neural Network Signal Processing (from 1998 to 2002)
- IEEE Signal Processing Society Award for best Signal Processing Magazine paper (published in May 1995, award received in 1997).
- Member of the Advisory Council of ISCA (International Speech Communication Association, since 1998)
- Member of the Editorial Board of the *International Journal of Pattern Recognition and Artificial Intelligence*, World Scientific.

- Reviewer of a variety of publications (IEEE and others)
- Appointed expert for the European Commission for European projects. From 2002 to 2007, member of the EC-ISTAG (Information Society Technology Advisory Group).
- Guest Editor, EURASIP Journal on Applied Signal Processing, Special Issue on Biometric Signal Processing, 2004.
- Guest Editor, EURASIP Journal on Applied Signal Processing, Special Issue on Robust Speech Recognition, 2005.
- Member of the Organizing Committee or Scientific Committee of numerous international conferences on speech processing, neural networks, and/or multimodal processing, including:
  - Co-Technical Chairman of the 2002 IEEE Intl. Conf. on Acoustics, Speech, and Signal Processing, Orlando, FL, USA
  - General Chairman of the 2002 IEEE Workshop on Neural Networks Signal Processing (NNSP), Martigny, CH
  - Member of the Organizing Committee of the 2002 IEEE Intl. Conf on Multimedia and Expo (ICME), Lausanne, August 2002
  - General Chairman of the 2003 Interspeech Conference, Geneva, CH
  - Co-General Chairman, IEEE Multi/Media Signal Processing (IEEE MMSP) workshop, Nice, 2001
  - European Liaison, and member of the scientific committee for the IEEE Neural Network for Signal Processing workshop, 2001
  - General Chairman of the First Joint Workshop on Machine Learning for Multimodal Interaction (MLMI'04), Martigny (CH), June 21-23, 2004.
  - Member of the Organizing Committee of 2nd and 3rd Joint Workshop on Machine Learning for Multimodal Interaction (MLMI'05-06), Edinburgh (July 11-13, 2006) and Washington (May 1-3, 2006).
  - General Chair of the 2011 Intl. Conference on Multimodal Interaction (ICMI'2011), Alicante, November 14-18, 2011.
- Technical Committee member of the IEEE-Thematic Meetings on Signal Processing (IEEE-THEMES) on "Signal and Information Processing for Social Networks", during Intl. Conf. on Acoustics, Speech and Signal Processing (ICASSP), Dallas, March 15, 2009.
- Guest Editor of the IEEE Journal of Selected Topics in Signal Processing (J-STSP) on "Signal and Information Processing for Social Network".
- Guest Editor of the IEEE Signal Processing Magazine, Special Issue on "A Mobile Revolution: The New Wave of Media Search", Vol. 28, No. 4, July 2011.
- Guest Editor of the IEEE Signal Processing Magazine, Special Issue on "Signal and Information Processing for Social Learning and Networking", 2012.
- Guest Editor of IEEE Signal Processing Magazine, Special Issue on "Mobile Media Search", 2012.
- Guest Editor of IEEE Signal Processing Magazine, Special Issue on "Signal and Information Processing for Social Learning and Networking", 2012.
- 4th Workshop on "Hands-free Speech Communication and Microphone Arrays" (HSCM'2014), Chairman of special session on "Advances in sparse modeling and low-rank modeling for speech processing", Nancy, May 12-14, 2014.
- Guest Editor of Speech Communication, Special Issue on "Advances in Sparse Modeling and Low-rank Modeling for Speech Processing, in preparation, 2015.
- Initiator and coordinator of numerous EU projects, like Wernicke, SPRACH, AMI, AMIDA, inEvent, etc, for a total funding amount of above 100 M€.
- This included scientific coordination of large EU Integrated Projects such as AMI (Augmented Multiparty Interaction), and AMIDA (Augmented Multiparty Interaction with Distant Access), which altogether received around $30M in funding from the European Commission (http://www.amiproject.org/).

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- Over 12 years (2001-2013), Idiap has also operated a Swiss National Center of Competence in Research (NCCR) on "Interactive Multimodal Information Management (IM2, www.im2.ch)" with around $40M of Swiss NSF funding (and $50M of matching funds). AMI/AMIDA focused on "meeting browsers", while IM2 is centered on larger issues of human-to-human interaction and management of resulting multimedia recordings.
- One of IM2's greatest impacts has been in commercialization of research, resulting in 17 new spin-off companies (http://www.im2.ch/tkt/Spin-off/).
- Patent:A Method, Apparatus and Computer Program for Determining the Location of a Plurality of Speech Sources, *Patent application No. 2012US-13/654055, 2012*

5. Full Biography

Hervé Bourlard received the Electrical and Computer Science Engineering degree and the PhD degree in Applied Sciences from ``Faculté Polytechnique de Mons'', Mons, Belgium, respectively in 1982 and 1992 (while working in industry).

Initially concerned with speech synthesis and signal processing, his current main interests now include statistical pattern classification, signal processing, neural networks, and applied mathematics, with applications in spoken language processing, speaker recognition/verification, image processing, and multimodal interaction.

From September 1982 to August 1990, he has been a Research Scientist at the Philips Research Laboratory of Brussels, Belgium, where he was involved in statistical pattern recognition, hidden Markov models, neural networks, with applications to automatic speech recognition, speaker verification and language processing.

From September 1988 to May 1989 (while still at Philips Research), Hervé Bourlard was on leave of absence from Philips as a Guest Scientist at the International Computer Science Institute (ICSI, http://www.icsi.berkeley.edu), Berkeley, CA. This resulted in a very successful and long-term (still going on) collaboration with ICSI. Since 1991, he has been an External Fellow of ICSI, with which he is involved in many common US and European research projects. Since January 2002, he is now a Member of the ICSI Board of Trustees.

From September 1990 to July 1994, he was an R&D Manager (and member of the Board of Directors) at L&H Speech Products (Belgium), at that time a start-up company, which became a major (NASDAQ) company in the field of speech processing. While at L&H, he initiated and was led the R&D Department devoted to speech recognition, speaker verification, neural networks, DSP integration, and application of the resulting algorithms in real-time applications.

From January 1995 to October 1996, he was affiliated with "Faculté Polytechnique de Mons" (FPMs, Mons, Belgium), before becoming Director (in November 1996) of the IDIAP Research Institute, a not-for-profit research institute affiliated with the Swiss Federal University of Lausanne (EPFL) and the University of Geneva. IDIAP is active in speech processing, computer vision, information retrieval, biometric authentication, multimodal processing, and machine learning. Since 1997, Hervé Bourlard is also Professor at the Swiss Federal Institute of Technology, Lausanne (EPFL), where he was promoted to the rank of Full Professor in December 2004.

Having worked for academia as well as large and small industries, Hervé Bourlard has broad and deep experience in both the industrial and academic worlds. He has initiated and managed many national and international projects (including numerous international and European projects), and was involved in the start up of a few spin-off companies.

Hervé Bourlard is the author/coauthor of 3 books and editor of 5 books, of over 300 refereed papers (including several book chapters), and a significant number of Technical Reports in different fields, including statistical pattern recognition, connectionist models, signal processing, speech recognition, and applied mathematics. Among these papers, he authored one invited paper for the Proceedings of the IEEE, as well as one invited paper for the IEEE Signal Processing Magazine. In April 1997, the latter paper (co-authored with N. Morgan) entitled "Continuous Speech Recognition--An Introduction to the Hybrid HMM/Connectionist Approach," published in the IEEE Signal Processing Magazine in May 1995) received the IEEE Signal Processing Society Award.

Hervé Bourlard is the author (together with Prof. N.Morgan from ICSI, Berkeley) of a book entitled "Connectionist Speech Recognition: A Hybrid Approach" (1994, Kluwer Academic Publishers, ISBN 0-7923-9396-1). A second book entitled "Traitement de la Parole" ("Speech Processing"), co-authored by R. Boite, T. Dutoit, J. Hancq and H. Leich) was also published in 2000 by the "Presses Polytechniques Universitaires Romandes" (ISBN 2-88074-388-5).

Hervé Bourlard is a Fellow of the IEEE (for contribution in the fields of statistical speech recognition and neural networks) and of the International Speech Communication Association (ISCA), a Senior Member of ACM (Association for Computing Machinery), member of EURASIP (European Association for Signal Processing) and ISCA (International Speech Communication Association), and an appointed expert for the European Commission (for European projects). He is also a Fellow of the EPSRC College (EPSRC, UK) and an appointed expert for the Science Foundation Ireland (SFI). From 2002 to 2007, he was also a member of the European Information Society Technology Advisory Group (ISTAG).

Hervé Bourlard has served on the organizing and scientific committees, and has been an invited speaker, of numerous international conferences. Among others, he has been Technical Co-Chair of the IEEE Intl. Conf. on Acoustics, Speech, and Signal Processing (ICASSP) in Orlando (FL) in 2002, General Chairman of the 2002 IEEE Neural Network Signal Processing workshop (Martigny/CH, September 2002), General Chairman of Eurospeech'2003 (Geneva, September 2003), General Chairman and initiator of the Machine Learning for Multimodal Interaction (MLMI) workshop (first held in Martigny, Switzerland, in 2004). He is also a member of the Editorial Board of several journal, including "Speech Communication" (ex-Editor-in-Chief) and "Intl. Journal of Pattern Recognition and Artificial Intelligence", and ex-Action Editor of "Neural Networks" (Pergamon). He was also the Guest Editor of the Special Issue on Biometric Signal Processing of the Eurasip Journal on Applied Signal Processing (April 2004).

Having worked for academia as well as large and small industries, Hervé Bourlard has broad and deep experience in both the industrial and academic worlds. He has initiated and managed numerous national and international projects (with US, EU and CH public funding agencies, as well as industry). Among those, he has initiated and managed numerous large EU projects (incl. AMI, AMIDA, inEvent, etc). He also initiated several start-up companies, and is the recipient of a few prestigious entrepreneurship awards.

6. Publication List (selected)

6.1 Books

1. Bourlard, H. and Popescu-Belis, A. (Editors), *Interactive Multimodal Information Management*, EPFL-Press (Presses Polytechniques et Universitaires Romandes), ISBN 978-1-4822-1212-9, October 2013.
2. Renals, S., Bourlard, H., Carletta, J., and Popescu-Belis, A. (Editors), *Multimodal Signal Processing – Human Interactions in Meetings*, Cambridge University Press, ISBN-13: 9781107022294, May 2012.
3. Thiran, J. -P., Marques, F., and Bourlard, H. (Editors), *Multi-modal Signal Processing: Methods and Techniques to Build Multimodal Interactive Systems,* Academic Press, ISBN-10: 0123748259, 2009.
4. Popescu-Belis, A., Renals, S., and Bourlard, H. (Editors), *Machine Learning for Multimodal Interfaces (4th International Workshop, MLMI'07)* (Brno, Czech Republic, June 2007), Lecture Notes in Computer Science, Springer, Vol. LNCS 4892, 2008.
5. Bengio, S. and Bourlard, H. (Editors), *Machine Learning for Multimodal Interfaces (First International Workshop, MLMI'04)* (Martigny, June 2004), Lecture Notes in Computer Science, Springer, Vol. LNCS 3361, 2005.
6. Bourlard, H., Adali, T., Bengio, S., Larsen, J., and Douglas, S. (Editors), *Neural Networks for Signal Processing*, IEEE Press, ISBN 0-7803-7616-1, 2002.
7. Boite, R., Bourlard, H., Dutoit, T., Hancq, J., and Leich, H., *Traitement de la Parole (Speech Processing)* (2nd Edition), Presses Polytechniques et Universitaires Romandes, Swiss Federal Institute of Technology, Lausanne, ISBN 2-88074-388-5, Dec. 1999.
8. Bourlard, H. and Morgan, N., *Connectionist Speech Recognition - A Hybrid Approach*, Kluwer Academic Publishers, ISBN 0-7923-9396-1, 1994.
9. Bourlard, H. (1992), "Continuous Speech Recognition: From Hidden Markov Models to Neural Networks," *Ph.D. Thesis*, Faculté Polytechnique de Mons, Belgium, June 1992.

6.2 Book Chapters

1. Dutoit, T., Couvreur, L., and Bourlard, H. (2009), "How does a dictation machine recognize speech?", *Applied Signal Processing--A MATLAB Approach*, pp. 104-148, Springer, MA, 2009.
2. Weifeng Li, K. Kumatani, J. John, M. Magimai.-Doss, and H. Bourlard, "A Neural Network based Regression Approach for Recognizing Simultaneous Speech," in *Machine Learning for Multimodal Interaction*, A. Popescu-Belis and R. Stiefelhagen (Eds.), Springer Berlin, 2008.
3. Stricker, C., Wagen, J.F., Aradilla, G., Bourlard, H., Hermansky, H., Pinto, J., Henri, P., and Théraulaz, J. (2009), "Intelligent mutli-modal interfaces for mobile applications in hostile environments," in *Human Machine Interaction: Research Results of the MMI Program*, Springer-Verlag, 2009.
4. Bengio, D. and Bourlard, H., (2005), "Multi-Channel Sequence Processing," Springer Lecture Notes in Computer Sciences (Springer LNAI 3635, 2005), invited talk, Intl. Workshop on Deterministic and Statistical Methods in Machine Learning, Sheffield, September 7-10, 2004.
5. Magimai-Doss, M. and Bourlard, H. (2005), "On the Adequacy of Baseform Pronunciations and Pronunciation Variants," *Machine Learning for Multimodal Interfaces (First International Workshop, MLMI'04)* (Martigny, June 2004), Lecture Notes in Computer Science, Springer, Vol. LNCS 3361, pp. 209-222.

6. McCowan, I., Gatica-Perez, D., Bengio, S., Moore, D., and Bourlard, H. (2004), "Towards Computer Understanding of Human Interactions", *Machine Learning for Multimodal Interfaces (First International Workshop, MLMI'04)* (Martigny, June 2004), Lecture Notes in Computer Science, Springer, Vol. LNCS 3361, pp. 56-75.

7. Bourlard, H., Bengio, S., and Weber, K. (2004), "Towards Robust and Adaptive Speech Recognition Models," in *Mathematical Foundations of Speech Processing and Recognition*, M. Johnson, S.P. Khudanpur, M. Ostendorf, and R. Rosenfled (Eds.), *The IMA Volumes in Mathematics and its Applications,* Springer, pp. 169-190.

8. Morgan, N., Bourlard, H., and Hermansky, H. (2004), "Automatic Speech Recognition: An Auditory Perspective," in *Speech Processing in the Auditory System*, S. Greenberg, W. Ainsworth, A. Popper and R. Fay (Eds.), Springer Verlag, New York, pp. 309-338.

9. McCowan, I., Gatica-Perez, D., Bengio, S., Moore, D., and Bourlard, H. (2003), "Towards Computer Understanding of Human Interactions", *Springer Lecture Notes in Computer Science* on "Ambient Intelligence" (Proceedings of European Symposium on Ambient Intelligence, Eindhoven, invited talk, Nov.2-4, 2003), ISSN 0302-9743, Vol. 2875/2003, ISBN: 3-540-20418-0, pp. 235-251.

10. Beaufays, F., Bourlard, H., Franco H., Morgan, N. (2002), "Speech Recognition Technology," in *The Handbook of Brain Theory and Neural Networks*, M. A. Arbib (Ed.), Bradford Books, The MIT Press, pp. 1076-1080.

11. Bourlard, H, and Bengio, S. (2002), "Hidden Markov Models," in *The Handbook of Brain Theory and Neural Networks*, M. A. Arbib (Ed.), Bradford Books, The MIT Press, pp. 528-533.

12. Bourlard, H., and Morgan, N. (1998), "Hybrid HMM/ANN Systems for Speech Recognition: Overview and New Research Directions," in *Adaptive Processing of Sequences and Data Structures*, C.L. Giles and M. Gori (Eds.), Lecture Notes in Artificial Intelligence (1387), Springer Verlag (ISBN 3-540-64341-9), pp. 389-417.

13. Bourlard, H. and Morgan, N. (1997), "Connectionist Techniques," in *Survey of the State of the Art in Human Language Technology*, R. Cole, et al. (Eds.), Cambridge University Press, pp. 356-361.

14. Konig, Y., Bourlard, H., and Morgan, N. (1995), "REMAP: Recursive Estimation and Maximization of A Posteriori Probabilities---Application to Transition-Based Connectionist Speech Recognition," in *Advances in Neural Information Processing Systems 8*, D. S. Touretzky, M. C. Mozer, and M. E. Hasselmo (Eds.), MIT Press, pp. 388-394.

15. Bourlard, H. and Morgan, N. (1995), "Hybrid Connectionist Models for Continuous Speech Recognition," in *Automatic Speech and Speaker Recognition*, C. H. Lee, K. K.Paliwal, and F. K. Soong (Eds.), Kluwer Academic Publishers, pp. 259-283.

16. Morgan, N. and Bourlard, H. (1995), "Speech Recognition and Neural Networks: Feature Extraction," The Handbook of Brain Theory and Neural Networks, M. A. Arbib (Ed.), Bradford Books, MIT Press, pp. 910-913.

17. Bourlard, H. and Morgan, N. (1995), "Speech Recognition and Neural Networks: Pattern Matching," *The Handbook of Brain Theory and Neural Networks*, M. A. Arbib (Ed.), Bradford Books, pp. 913-918, The MIT Press.

18. Bourlard, H. (1994), "Wernicke: A Neural Network Based, Speaker Independent, Large Vocabulary, Continuous Speech Recognition System," *Advanced Speech Applications --- European Research on Speech Technology*}, K. Varghese, S. Pfleger, and J.-P. Lefèvre (Eds.), pp. 300-319, Springer Verlag.

19. Morgan, N., Bourlard, H., Renals, S., Cohen, M., and Franco. H. (1994), "Hybrid Neural Network/Hidden Markov Model Systems for Continuous Speech Recognition," in *Advances in Pattern Recognition Systems Using Neural Networks Technologies*, World Scientific.

20. Renals, S., Morgan, N., Bourlard, H., Franco, H., and Cohen, M. (1992), "Connectionist Optimization of Tied Mixture Hidden Markov Models," in *Advances in Neural Information Processing Systems 4*}, R. P. Lippmann, J. E. Moody, and D. S. Touretzky (Eds.), pp. 167-174, San Mateo, CA: Morgan Kaufmann.

21. Renals, S., Morgan, N., Bourlard, H. (1991), "Probability Estimation by Feed-Forward Networks in Continuous Speech Recognition," *Proc. of IEEE Workshop on Neural Networks for Signal Processing* (Princeton, NJ), B. H. Juang, S. Y. Kung, and C. A. Kann (Eds.), pp. 309-318.
22. Bourlard, H. and Morgan, N. (1991), "Connectionist Approaches to the Use of Markov Models for Speech Recognition," in *Advances in Neural Information Processing Systems 3*, R.P. Lippmann, J.E. Moody, and D.S. Touretzky (Eds.), pp. 213-219, San Mateo, CA: Morgan Kaufmann.
23. Bourlard, H. and Morgan, N. (1991), "Merging Multilayer Perceptrons and Hidden Markov Models: some Experiments in Continuous Speech Recognition," in *Neural Networks: Advances and Applications*, E. Gelenbe (Ed.), Elsevier Science Publishers N. V. (North-Holland), pp. 215-239.
24. Bourlard, H. (1990), "How Connectionist Models Could Improve Markov Models for Speech Recognition," in *Advanced Neural Computers*, R. Eckmiller (Ed.), pp. 247-254, North-Holland.
25. Bourlard, H. and Morgan, N. (1990), "A Continuous Speech Recognition System Embedding MLP into HMM," in *Advances in Neural Information Processing Systems 2*, D.S. Touretzky (Ed.), pp. 186-193, San Mateo, CA: Morgan Kaufmann.
26. Morgan, N. and Bourlard, H. (1990), "Generalization and Parameter Estimation in Feedforward Nets: Some Experiments," in *Advances in Neural Information Processing Systems 2*, D. S. Touretzky (Ed.), pp. 630- 637, San Mateo, CA: Morgan Kaufmann.
27. Bourlard, H., Morgan, N., and Wellekens, C.J. (1990), "Statistical Inference in Multilayer Perceptrons and Hidden Markov Models with Applications in Continuous Speech Recognition," in *Neurocomputing: Algorithms, Architectures and Applications*, F., Fogelman and J. Hérault (Eds.), NATO ASI Series, vol. F68, Springer-Verlag, pp. 217-226.
28. Bourlard, H. and Wellekens, C.J. (1989), "Links between Markov Models and Multilayer Perceptrons," *Advances in Neural Information Processing Systems 1*, D.S.Touretzky (Ed.), pp. 502-510, San Mateo, CA: Morgan Kauffmann.
29. Bourlard, H., Kamp, Y., Ney, H., and Wellekens, C.J. (1985), "Speaker Dependent Connected Speech Recognition via Dynamic Programming and Statistical Methods", in *Speech and Speaker Recognition*, M.R. Schroeder (Ed.), pp.115-148, Karger (Basel).

6.3 Refereed Journal Papers

1. Cernak, M., Asaei, A. and Bourlard, H. (2016), "On Structured Sparsity of Phonological Posteriors for Linguistic Parsing," to be published in *Speech Communication*.
2. Ferras, M, Madikeri, S., Motlicek, P., Dey, S., and Bourlard, H. (2016), "A Large-Scale Open-Source Acoustic Simulator for Speaker Recognition," to be published in *IEEE Signal Processing Letters*, 2016.
3. Ferràs, M., Madikeri, S., and Bourlard, H. (2016), "Speaker Diarization and Linking of Meeting data," *IEEE Trans. on Audio, Speech and Language Processing*, 2016.
4. Ullmann, R. and Bourlard, H. (2015), "Predicting the Instrusiveness of Noise Through Sparse Coding With Auditory Kernels," to be published in *Speech Communication*, Special Issue on Advances in Sparse Modeling and Low-rank Modeling in Speech Processing, 2015.
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