Contents

Curriculum Vitae

Johan Adam du Preez

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1   Personal Information

Work address	Department of Electrical and Electronic Engineering
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	Email: dupreez@dsp.sun.ac.za
	Web: http://www.dsp.sun.ac.za/∼dupreez
Date of birth	8 September 1958
Hobbies	Hiking; nature photography; birding; indigenous trees and flowers; snorkel and SCUBA diving; aikido; good classical, jazz and contemporary music; playing Go (strategy board-game popular in the Orient); programming languages; and software engineering
Position	Associate Professor
Academic interests	Pattern recognition, speech and signal processing, biometrics
Professional affiliations	Institute of Electrical and Electronic Engineers [IEEE] (Member)

2   Vision

I am convinced that the ability of machines to analyse, recognise and react to external stimuli is an enabling and dominant technology for the future information-based society. Based on their capability in this field, economies and cultures will thrive or wane in the new era. Languages will either be enabled via automatic speech processing, or they will retreat to dwindling cultural enclaves.

The field of Pattern Recognition and Understanding is multi-disciplinary in nature, incorporating elements from Mathematics, Statistics, Computer Science and Linguistics, but often finds a home in an Electrical and Electronic Engineering department. It is my dream to develop such a multi-disciplinary laboratory that will not only be a nucleus for manpower and knowledge, but will also be competitive in niche markets on a world-wide basis.

3 Academic qualifications

Ph.D.	University of Stellenbosch	March 1998	
Title of dissertation:	"Efficient high-order hidden Markov modelling"		
M.Eng. (cum laude)	University of Stellenbosch	December 1985	
Title of thesis:	"Speech-independent speaker recognition using clustering"		(Final grade: 85%)
B.Eng (Electronics)	University of Stellenbosch	December 1982	
Senior Certificate	Paul Roos Gymnasium	December 1976	(Final average symbol: A)
Other:	UNISA	1987/1988	
	Mathematical Statistics and Theory of Computation		(Final average: 80%)

Theory of Computation III, Statistical Inference III, Analysis of Variance and Regression III, Stochastic Processes III, Statistical Distribution Theory III)

4 Professional experience

2000 -	:	Associate Professor, University of Stellenbosch
1989 - 2000:		Senior Lecturer, University of Stellenbosch
1985 - 1989:		Group leader for speech processing projects for Potelin (Telecommunications Research)
2004 -	:	Founder member and participant of the Stellenbosch University Center for Language and Speech Technology (SU'CLaST). This center handles large (multi-million rand) speech projects.
2002 -		Member of the "Vision and Learning at Stellenbosch (VLS) group, research and industry support on image processing and machine learning.
2000 - 2003:		One of three team leaders in a Department of Arts, Culture, Technology and Science Innovation Fund project (extent is R9 million) on Promoting the development of the official languages of South Africa through language and speech technology applications
		Member of the South African Foundation for Language and Speech Technology Development.
1997 - 1999:		Project leader for speech processing projects of the Telkom - DataFusion Centre of Excellence
1994 -	:	Director of the Signal Processing group of the Centre for Electrical and Electronic Engineering (SEEI)
1989 -		Consultation/contract research/project work for industries including Armscor, DataFusion, Peralex and EDH. Project topics involving substantial amounts of money include: Speech synthesisers; Phoneme recognition, vowel- and plosive recognition; Speaker identification and verification; Voice modification and speaker adaptation; Word spotting; Topic spotting; Fast match techniques; Automatic language recognition; Biometrics; and analysis of Spread- spectrum signals.

5 Higher education institution experience

5.1 Teaching

Senior undergraduate and graduate Electrical and Electronic Engineering courses at the University of Stellenbosch including: Stochastic Signals and Systems (3rd year), Digital Signal Processing (4th year), Telecommunication Theory (4th year), Pattern Recognition (post-graduate), and Optimal Signal Processing (post-graduate) (1989-)

5.2   Curriculum development

Establishment of the Baccalaureus in Engineering Sciences course at the University of Stellenbosch (Combination of Information Technology, Computer Science, Signals and Systems Theory, Mathematics and Applied Mathematics)

Contributing towards updating and refining the senior-undergraduate and graduate courses offered by the Signal Processing group of the Electrical and Electronic Engineering Department of the University of Stellenbosch

5.3   Tutoring

Promoter/co-promoter for graduated Ph.D. students (8); Promoter/co-promotor for current Ph.D. candidates (3); Supervisor/co-supervisor for graduated M.Eng. students (39); Supervisor/co-supervisor for current MSc.Eng. candidates (8) (see 7. Students)

5.4   Research

NRF Rating C2

Focus of research: Signal processing and pattern recognition applied to biometrics and speech processing which includes: Hidden Markov modelling (including higher-order techniques), statistical and syntactic pattern recognition, novel feature analysis techniques, neural nets, etc.

Central in furthering the establishment of the US Speech Research Group (1989) and in pioneering work in the field of high-order hidden Markov modelling being a focal point in ongoing research at the Group (see 6. Publications).

5.5   Service on committees

Member of:

- Electrical and Electronic Engineering Program Committee.

- B.Eng.Sc. Program Committee.

5.6   Reviewing

Reviewer of papers for: IEEE Transactions on Neural Networks; Elsevier Pattern Recognition, South African Journal of Science, IEEE Communications and Signal Processing Conference (COMSIG), IEEE International AFRICON conference on Electrotechnological Services for Africa

Peer reviewer for the National Research Foundation (formerly FRD)

5.7   External examining

External examiner for tertiary courses, masters theses and doctoral dissertations

5.8   Conferences

Co-chair and Member of the Conference Organising Committee for the (International) Odyssey 2008 Speaker and Language Recognition Workshop, Stellenbosch, 21-24 January 2008. http://www.speakerodyssey.com

Member of the Conference Organising Committee for the International Speech Communication Association's (ISCA) Tutorial and Research Workshop on Multilingual Speech and Language Processing, Stellenbosch, 9-11

April 2006. http://www.unistel.co.za/multiling2006

Session chair (frequently) at the following conferences: COMSIG, PRASA, AFRICON, SANUM

Member of the Conference Organising Committee for COMSIG and PRASA

6   Publications

6.1   Dissertation and thesis

1. J.A. du Preez 1998. "Efficient high-order hidden Markov modelling". Ph.D. dissertation (Supervisors: Dr Etienne Barnard & Dr David M. Weber), University of Stellenbosch, March 1998.

2. J.A. du Preez 1985. "Spraakonafhanklike sprekerherkenning met behulp van trosvorming" (trans. "Speech independent speaker recognition using clustering techniques"). M.Eng. thesis (Supervisor: Prof M.W. Coetzer), University of Stellenbosch, November 1985.

6.2   Patents (2)

1. J.A. du Preez & D.M. Weber 1993. Sprekerherkenning met bekende arbitrre teks (trans. "Speaker recognition with known but arbitrary text"), S.A patent no: 93-3171.

2. A toy exhibiting bonding behaviour, Two provisional patents lodged by Innovus, 2008.

6.3   Papers in journals (12)

1. E-M. Nel, J. A. du Preez, B. M. Herbst, A pseudo-skeletonization algorithm for static handwritten scripts, International Journal of Document Analysis and Recognition, 2009. (accepted for publication)

2. Izak van Zyl Marais, Johan Adam du Preez, Willem Herman Steyn, An optimal image transform for threshold-based cloud detection using heteroscedastic discriminant analysis, International Journal of Remote Sensing, 2009. (accepted for publication)

3. H.A. Engelbrecht, J.A du Preez, "Efficient backward decoding of high-order Hidden Markov models", Pattern Recognition, 2008. (accepted for publication)

4. E-M. Nel, J. A. du Preez, B. M. Herbst, Verification of Dynamic Curves Extracted from Static Handwritten Scripts, Pattern Recognition, 2008. (accepted for publication)

5. Niko Brmmer and Johan du Preez. "Application-independent evaluation of speaker detection", Computer Speech and Language Vol 20 Iss 2-3 April/July 2006: 230-275.

6. E-M. Nel, J.A. du Preez and B.M. Herbst. "Estimating the pen trajectories of static signatures using Hidden Markov Models." IEEE Transactions on Pattern Analysis and Machine Intelligence Vol 27 No 11, November 2005: 1733-1746.

7. G. Esterhuizen and J.A. du Preez. "Univariate parametric Parzen approximation using an efficient frequency domain approach", Invited paper, Trans SAIEE Vol 94 no 2, June 2004: 66-71.

8. J. Coetzer, B.M. Herbst and J.A. du Preez 2004. "Off-line signature verification using the discrete Radon transform and a hidden Markov model", EURASIP Journal on Applied Signal Processing, Volume 2004, no 4, April 2004: 559-571.

9. C. van Niekerk, J.A. du Preez & D. Schreurs 2003. "A new hybrid multi-bias analytical/decomposition-based FET parameter extraction with intelligent bias point selection", IEEE Transactions on Microwave Theory and Techniques, 51(3): 893-902.

10. J.A. du Preez & D.M. Weber 1999. "The integration and training of arbitrary-order HMMs", Australian Journal on Intelligent Information Processing Systems (ICSLP98 Special Issue), 5(4): 261-268, July. (Invited paper, one of 8 selected from more than 800 presented at the International Conference on Spoken Language Processing ICSLP98)

11. J.A. du Preez 1998. "Efficient training of high-order hidden Markov models using first-order representation", Computer Speech and Language, 12(1): 23-39.

12. J.G. Lourens & J.A. du Preez 1998. "Passive sonar ML estimator for ship propeller speed", IEEE Journal of Oceanic Engineering, 23(4): 448-453.

6.4   Papers in international conference proceedings (14)

1. I. v. Z. Marais, W. H. Steyn, and J. A. du Preez, Construction of an image quality assessment model for use on board an LEO satellite, in Proceedings of the IEEE International Geoscience and Remote Sensing Symposium. IEEE, 11-15 July 2008.

2. J.C. Roux, J.A. du Preez, E. de Villiers, "Accent variation in South African English: Challenges for speech recognition systems", in the Proceedings of the Second Language and Technology Conference, Poznan, Poland, 2005, pp. 15-19.

3. E-M. Nel, J. A. du Preez, B. M. Herbst, "Estimating the Pen Trajectories of Multi-Path Static Scripts using Hidden Markov Models", in the Proceedings of the International Conference on Document Analysis and Recognition, Seoul, 2005, pp. 41-47.

4. P.W. Nel & J.A. du Preez 2003. "Automatic syllabification using hierarchical hidden Markov models", Proceedings of the IEEE International Workshop on Neural Networks for Signal Processing, Toulouse, France, September 2003.

5. P.W. Nel & J.A. du Preez 2003. "Automatic syllabification using hierarchical hidden Markov models", Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing (pp. I-768 - I-771), Hong Kong, April 2003.

6. G.Esterhuizen & J.A. du Preez 2002. "Efficient frequency domain univariate Parzen approximation and applications", IEEE AFRICON '02, George, 2002.

7. M.W. Theunissen, K. Scheffler & J.A. du Preez 2001. "Phoneme-based topic spotting on the Switchboard corpus", 7'th European Conference on Speech Communication and Technology (pp. 283-286), Aalborg, Denmark, September 2001.

8. L.C. Schwardt & J.A. du Preez 2000. "Efficient mixed-order hidden Markov model inference", International Conference on Spoken Language Processing, Paper 01562 (4 pp.), Beijing, October 2000.

9. L.C. Schwardt & J.A. du Preez 2000. "Automatic language identification using mixed-order HMMs and untranscribed corpora", International Conference on Spoken Language Processing, Paper 01563 (4 pp.), Beijing, October 2000.

10. J.C. Roux, E.C. Botha & J.A. du Preez 2000. "Developing a multi-lingual telephone based information system in African languages", Second International Conference on Language Resources and Evaluation, Athens, Greece, 31 May -2 June 2000.

11. J.A. du Preez & D.M. Weber 1998. "Automatic language recognition using high- order HMMs", International Conference on Spoken Language Processing, Paper 1074 (4 pp.), Sydney, December 1998.

12. J.A. du Preez & D.M. Weber 1998. "Efficient high-order hidden Markov modelling", International Conference on Spoken Language Processing, Paper 1073 (4 pp.), Sydney, December 1998.

13. L.R. Strydom & J.A. du Preez 1996. "Development of an effective context-free parser for continuous stochastic languages", IEEE AFRICON '96, Stellenbosch, September 1996.

14. T. Waardenburg, J.A. du Preez & M.W. Coetzer 1992. "The automatic recognition of stop consonants using hidden Markov models", Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing (pp. 1585-1588), San Francisco, March 1992.

6.5   Papers in local conference proceedings (33)

1. P.E. Scholtz, A.S. Visagie and J.A. du Preez, "Synthetic voice construction using statistical methods." 18th International Symposium of the Pattern Recognition Association of South Africa, University of KwaZulu-Natal, Pietermaritzburg, South Africa, 2007: 69-74.

2. E-M. Nel, J. A. du Preez, B. M. Herbst, "Estimating the pen trajectories of handwritten static scripts using hidden Markov models", The annual conference of the South African Society for Numerical and Applied Mathematics (SANUM), 2006.

3. E-M. Nel, J. A. du Preez, B. M. Herbst, "Estimating the pen trajectories of handwritten static scripts using hidden Markov models", The annual conference of the South African Society for Numerical and Applied Mathematics (SANUM), 2005.

4. E-M. Nel, J.A. du Preez and B.M. Herbst. "Estimating the pen trajectories of static signatures using Hidden Markov Models", The annual conference of the South African Society for Numerical and Applied Mathematics (SANUM), 2005.

5. E. de Villiers & J.A. du Preez 2001. "The advantage of using higher order HMM's for segmenting acoustic files". Proceedings of the Twelfth Annual Symposium of the Pattern Recognition Association of South Africa (pp. 120-122), Franschhoek, November 2001.

6. H.A. Engelbrecht & J.A. du Preez 2001. "The interplay of signal analysis and phoneme modelling on phoneme recognition.", Proceedings of the Twelfth Annual Symposium of the Pattern Recognition Association of South Africa (pp. 123-127), Franschhoek, November 2001.

7. A. Visagie & J.A. du Preez 2001. "Sinusoidal modelling in speech synthesis, a survey.", Proceedings of the Twelfth Annual Symposium of the Pattern Recognition Association of South Africa (pp. 138-142), Franschhoek, November 2001. (Awarded best student paper at conference)

8. L.C. Schwardt & J.A. du Preez 2000. "Mixed-order HMMs for language recognition", IEEE COMSIG-2000, Stellenbosch, September 2000.

9. J. Pool, J.A. du Preez & J.G. Lourens 1999. "The effects of HF channels on LPC cepstral parameters", Proceedings of the Tenth Annual South African workshop on Pattern Recognition, Paper no 10 (6 pp. on CD-ROM), Stellenbosch, November 1999.

10. L. Schwardt & J.A. du Preez 1999. "Modelling temporal structure with prediction suffix trees", Proceedings of the Tenth Annual South African workshop on Pattern Recognition, Paper no 13 (6 pp. on CD-ROM), Stellenbosch, November 1999.

11. J.A. du Preez & D.M. Weber 1998. "High-order hidden Markov modelling", IEEE COMSIG-98 (pp. 197-202), Cape Town, September 1998.

12. K. Scheffler & J.A. du Preez 1998. "Stochastic method for automatic recognition of topics", IEEE COMSIG-98 (pp. 67-72), Cape Town, September 1998.

13. R. van der Merwe & J.A. du Preez 1998. "Hybrid combination of knowledge- and cepstral-based features for phoneme recognition", IEEE COMSIG-98 (pp. 63-66), Cape Town, September 1998.

14. L.C. Schwardt & J.A. du Preez 1998. "Voice conversion based on static speaker characteristics", IEEE COMSIG-98 (pp. 57-62), Cape Town, September 1998.

15. J.A. du Preez & D.M. Weber 1998. "Automatic language recognition using high-order HMMs", Proceedings of the Ninth Annual South African workshop on Pattern Recognition (pp. 18-22), Stellenbosch, 19-20 November 1998.

16. J.A. du Preez 1997. "Algorithms for high order hidden Markov modelling", IEEE COMSIG-97 (pp. 101-106), Grahamstown, 9 September 1997.

17. J.A. du Preez & D.M. Weber 1997. "Comparison of the Order Reducing (ORED) and Fast Incremental Training (FIT) algorithms for training high order hidden Markov models", IEEE COMSIG-97 (pp. 47-52), Grahamstown, 9 September 1997.

18. K. Scheffler & J.A. du Preez 1997. "Improvements in phoneme-based topic spotting", Proceedings of the Eighth Annual South African workshop on Pattern Recognition (pp. 136-139), Grahams Town, 26-27 November 1997.

19. H.F.V. Boshoff, J.A. du Preez & M.W. Coetzer 1995. "Towards understanding vowels", IEEE COMSIG-95 (Supplement), Pretoria, 16 November 1995. (Awarded best paper at conference)

20. R. Lehmensiek & J.A. du Preez 1995. "Maximum likelihood estimation versus least-squares estimation in semi-continuous hidden Markov modelling", IEEE COMSIG-95 (pp. 140-147), Pretoria, 16 November 1995.

21. J.A.L. Basson & J.A. du Preez 1994. "Adaptive estimation of speech parameters", IEEE COMSIG-94 (pp. 177-182), Stellenbosch, 4 October 1994.

22. D. Strydom, J.A. du Preez & S. Mostert 1993. "Automatic recognition of magnetic cheque characters with hidden Markov models", IEEE COMSIG-93 (pp. 91-95), Johannesburg, 6 August 1993.

23. J.C. de Bruin & J.A. du Preez 1993. "Automatic language recognition based on discriminating features in pitch contours", IEEE COMSIG-93 (pp. 133-138), Johannesburg, 6 August 1993.

24. D.M. Weber & J.A. du Preez 1993. "A comparison between hidden Markov models and vector quantisation for text independent speaker recognition", IEEE COMSIG-93 (pp. 139-144), Johannesburg, 6 August 1993.

25. J.A. du Preez 1992. "Language recognition by means of ergodic hidden Markov models", IEEE COMSIG-92 (pp. 33-38), Cape Town, September 1992.

26. F.J. Scholtz & J.A. du Preez 1992. "Iterative speaker adaptation for speech recognition", IEEE COMSIG-92 (pp. 39-42), Cape Town, September 1992.

27. J.A. du Preez 1991. "Modelling durations in hidden Markov models with application to word spotting", IEEE COMSIG-91 (pp. 1-5), Johannesburg, August 1991.

28. C.J. van der Merwe & J.A. du Preez 1991. "Calculation of LPC based cepstrum coefficients using Mel-scale frequency warping", IEEE COMSlG-91 (pp. 17-21), Johannesburg, August 1991. (Awarded best paper at conference)

29. C.J. van der Merwe & J.A. du Preez 1991. "Alignment of speech with phonetic representation using continuous density hidden Markov models", IEEE COMSIG-91 (pp. 22-27), Johannesburg, August 1991.

30. T. Waardenburg, J.A. du Preez & M.W. Coetzer 1991. "The automatic recognition of Afrikaans stop consonants in continuous speech by machine", IEEE COMSIG-91 (pp. 110-115), Johannesburg, August 1991.

31. J.A. du Preez 1988. "Approaches to speaker-independent isolated word recognition", IEEE COMSIG-88 (pp. 41-45), Pretoria, June 1988.

32. J.A. du Preez 1988. "Utilising hidden Markov models for speech recognition", IEEE South African workshop on speech processing (pp. 1-7), Stellenbosch, October 1988.

33. J.A. du Preez 1985. "Sprekerherkenning met behulp van groeperingsmetodes" (trans. "Speaker recognition by means of clustering methods"), Derde Suid-Afrikaanse Simposium oor Syferseinverwerking (pp. 9-1 9-7), Stellenbosch, June 1985.

6.6   Other publications (7)

The American National Institute for Standards and Technology hosts various international evaluations/competitions each year. These evaluations draw entries from some of the best known universities and industries on a worldwide scale. Some of my post-graduate students, in collaboration with a local company and other international research groups, have partaken in a number of these evaluations and have each time done exceedingly well. Here is a list of these events:

1. NIST 2008 Speaker Recognition Evaluation (Achieved 6th place)

2. NIST 2007 Language Recognition Evaluation (Achieved 6th place)

3. NIST 2006 Speaker Recognition Evaluation (Achieved 1st place in the main/1side-1side competition)

4. NIST 2005 Language Identification Evaluation (Achieved 5th place)

5. NIST 2005 Speaker Recognition Evaluation (Achieved 3rd position in the main/1side-1side competition)

6. NIST 2004 Speaker Recognition Evaluation (Achieved 2nd and 3rd positions, also a 1st position in a non-official category)

7. NIST 2002 Speaker Recognition Evaluation (Achieved 2nd position)

6.7   Manuscripts in preparation (2)

1. Niko Brmmer and Johan du Preez, "The PAV algorithm optimizes binary proper scoring rules.", Journal of Machine Learing, submitted.

2. E-M. Nel, J. A. du Preez, B. M. Herbst. Estimating the Pen Trajectories of Multi-Path Static Handwritten Scripts using Hierarchical Hidden Markov Models, IEEE Transactions on Pattern Analysis and Machine Intelligence, submitted.

7   Students

7.1   Graduated doctoral students (8)

1. I.v.Z. Marais, Analyzing quality in satelite images, March 2009. (Co-supervisor with H Steyn)

2. L.C. Schwardt, "Efficient mixed-order Hidden Markov Model inference", December 2007. (168pp)

3. H.A. Engelbrecht, "Efficient decoding of high-order Hidden Markov Models", December 2007. (152pp)

4. E-M. Nel, Estimating the pen trajectories of handwritten static scripts using hidden Markov models, December 2006.

5. J. Coetzer, The automatic recognition of hand-signatures from static (image) features, March 2005. (Co-promotor with B.M. Herbst)

6. H.F.V. Boshoff, Die akoestiese diskretisering van vokaalruimte (trans. "The acoustic discretisation of vowel space"), December 1997. (Co-promoter with M.W. Coetzer)

7. J.G. Lourens, Modelle vir onderwater skeepsgeraas toegepas op die klassifikasie en deteksie van skepe (trans. "Models for detecting and classifying ships from the underwater noise generated by them"), December 1996. (Co-promoter with M.W. Coetzer)

8. T. Waardenburg, The automatic recognition of stop consonants, November 1994. (Co-promoter with M.W. Coetzer)

7.2   Graduated masters students (39)

1. R. Brand, "A comparison of Gaussian mixture variants with application to automatic phoneme recognition", 2007. (107pp)

2. L.P. Ellis, "Human-computer interface using a web camera", 2007. (co-studyleader with BM Herbst, 72pp)

3. P.J. Holtzhauzen, "Identity confidence estimation of maneuvering aircraft", 2007. (co-studyleader with BM Herbst, 60pp)

4. E. de Villiers, Automatic alignment and error detection for phonetic transcriptions in the African Speech Technology project databases (111 pp), April 2006.

5. F. Cilliers, Tree-based Gaussian mixture models for speaker verification (156 pp), December 2005.

6. J.S.S. Ballot, Face Recognition Using Hidden Markov Models (98 pp), March 2005.

7. E. Jacobs, Deterministic tracking using active contours (131 pp), March 2005.

8. P.W. Nel, Automatic Syllabification of Untranscribed Speech (86 pp), March 2005.

9. P.A. Rautenbach, Facial Feature Reconstruction using Structure from Motion (116 pp), March 2005.

10. W.R. Calitz, Independent Formant and Pitch Control Applied to Singing Voice, December 2004.

11. I. du Toit, Non-acoustic speaker recognition, (215 pp), December 2004.

12. A. Visagie, Speech Generation in a Spoken Dialogue System (161 pp), December 2004.

13. H. Engelbrecht, Phoneme modelling with a view to the automatic recognition of South African English and Xhosa speech, March 2004.

14. A. du Toit, The automatic recognition of South African English variants, March 2004.

15. C.R. Sindle, Effective incremental/adaptive modelling of dynamically digitised hand-signatures, December 2003.

16. G. Esterhuizen, Generalised density function estimation using moments and the characteristic function, March 2003.

17. R.M. Fanner, A comparison of speaker adaptation using the MAP, MLLR and MLED methods, December 2002.

18. J. Pool, Investigation of the impact of high frequency channel transmitted speech on speaker recognition, (J.G. Lourens is co-supervisor), March 2002.

19. M.W. Theunissen, Phoneme-based topic spotting on the Switchboard corpus, March 2002

20. P le Rich, The automatic recognition of hand-signatures from dynamic (digitising tablet) features. (B.M. Herbst is co-supervisor), March 2001.

21. N.H.D. Terblanche, Knowledge-based speech recognition applied to broad-class phoneme recognition: An investigation, December 1998.

22. K.H. Scheffler, Phoneme based topic spotting in conversational speech, March 1998.

23. L.C. Schwardt, Voice modification, an investigation, March 1998.

24. R. van der Merwe, Variations on statistical phoneme recognition: A hybrid approach, March 1998.

25. L.R. Strydom, An effective stochastic context free parser, November 1996. (Awarded best thesis in department)

26. C.H.B. Gersbach, Stemtoon manipulasie (trans. ”Voice pitch manipulation”), November 1996.

27. J.A.N. Louw, A cascade pole-zero synthesiser, February 1996.

28. A.E. Roodt, Algorithm for an A* stack search HMM word spotter, November 1995.

29. W.P.J. Malan, Auditory models for noise-immune speech recognition, October 1995. (Co-supervisor with D.M. Weber)

30. R. Lehmensiek, Maximum likelihood estimation vs. least squares estimation in semi-continuous hidden Markov modelling, October 1995.

31. D. Strydom, Recognition of speech in additive and convolutional noise, March 1995.

32. J.C. van Rooyen, Sustained learning for a speech recognition system, December 1994.

33. M.M. McGetrick, Performance of the prediction control neural network and the role of temporal modelling in speaker identification, December 1994.

34. J.A.L. Basson, Adaptive estimation of speech parameters, March 1994.

35. J.C. de Bruyn, Automatic language recognition based on discriminating features in pitch contours, July 1993.

36. J.P. van Woudenberg, The automatic recognition of Afrikaans fricatives using both fuzzy sets and standard statistical methods, November 1992.

37. F.J. Scholtz, Iterative speaker adaptation for speech recognition systems, January 1992.

38. C.J. van der Merwe, Phonetic alignment of speech using continuous density hidden Markov models, October 1991. (Awarded best thesis in department)

39. B. van der Eems, Die akkurate analise van spraak met die doel om parameters te onttrek vir die Holmes sintetiseerder (trans. "Accurate speech analysis for determining parameters for the Holmes synthesiser"), January 1991. (Co-supervisor with M.W. Coetzer)

7.3   Current doctoral students (3)

1. J.N.L. Brmmer, Evaluation and Calibration of Speaker Verification systems.

2. Albert Swart Video-based tracking and recognition of hand written scripts. (Co-supervisor with B.M. Herbst)

3. Janto Dreyer Gesture recognition. (Co-supervisor with B.M. Herbst)

7.4   Current masters students (8)

1. J Dalton, Online Signature Verification. (Co-supervisor with J.H. Coetzer)

2. M du Preez, Fast Accurate Diphone based Phoneme Recognition. (H.A. Engelbrecht is co-supervisor)

3. A Gouws, SciPy Python libraries for probabilistic graphical models. (Co-supervisor with B.M. Herbst)

4. S Lodder, EEG analysis. (B.M. Herbst is co-supervisor)

5. A Strasheim, Fusion techniques for speaker verification.

6. P Scholtz, HMM-based Text-To-Speech synthesis.

7. G Strydom, Automatic recognition of South African English accents.

8. R Swart, Large vocabulary speech recognition techniques and their implementation. (H.A. Engelbrecht is co-supervisor)