

## *10 Bibliography*

## Chapter 10

### Bibliography

#### References of Chapter 1

- 1 W.J. Tompkins, "Biomedical Digital Signal Processing", Prentice Hall Englewood cliffs, New Jersey, 1993.
- 2 Ivaylo I. Christov, Ivan K. Daskalov., "Filtering of Electromyogram artifacts from the electrocardiogram", Medical Engineering & Physics 21 (1999) 731-736.
- 3 Joseph Suresh Paul, M. Ramasubba Reddy and Varadarajan Jagadeesh Kumar, "A Transform Domain SVD for Supression of Muscle Noise Artefacts in Exercise ECG's", IEEE Transactions on Biomedical. Engineering, vol, 47, no. 5. May 2000.
- 4 D. Tufts and R. Kumarsen "singular value decomposition and improved frequency estimation using linear prediction" IEEE Trans Acoust speech Signal Processing vol ASSP 30 pp 671-675 Aug 1982.
- 5 S. K. Srikanth "A high resolution signal averaged ECG system for identification of myocardial patients prone to ventricular tachycardia" M.S. thesis, Indian Institute of Technology, Madras India April 1996.
- 6 S. Selvan and R Srinivasan, "Adaptive Filtering Techniques using Neural Networks", IETE Technical Review Vol. 17. no. 3, May –June 2000 pp 111-118.
- 7 Thakor N. V. Zhu Y-S "Application of Adaptive filtering to ECG analysis noise cancellation and arrhythmia detection", IEEE Transactions. Biomedical. Engineering, 1991; 38:785-94.
- 8 Bensadoun Y, Novakov E. Raoof K.. "Multidimensional adaptive method for canceling EMG signals from the ECG signals" In Roberge FA Kearney RE, editors 17<sup>th</sup> Ann Int conf. on the IEEE engg., in Med and Biol Soc., Montreal 1995 : 299:300.
- 9 Luo S. Tompkins W.J:"Experimental study : Brachial Motion artifact reduction in the ECG" Comp Cardiol 1995:33-6.
- 10 Rossi R. Casteli A, Bertinelli M. "Design of fast filters with corrected frequency response" In: Nagel JH Smith WM editors 13<sup>th</sup> Ann Int. Conf. on the IEEE Engg. In Med and Biol Soc., Orlando 1991: 574-5.
- 11 Yaniv Zigel, Arnon Cohen and Amos Katz, "ECG Signal Compression Using Analysis by Synthesis Coding" , IEEE Transaction on Biomedical Engineering vol, 47, no. 10, Oct 2000.

- 12 Gil Nave and Arnon Cohen, "ECG Compression Using Long-Term Prediction", IEEE Transaction on Biomedical Engineering, vol 40, No 9, September 1993.
- e. Ruttiman and H.V. Pipeberger, "Compression of the ECG by or interpolation and entropy encoding", IEEE Trans Biomed. Eng., vol BME-26, 613-623, 1979.
- 13 W.C. Mueller "Arrhythmia detection software for an ambulatory ECG monitor", Biomed Sci., Inst., vol 14, pp 81-85, 1978.
- 14 J.R. Cox, F.M. Nolle, H. A. Fozzard, and G.C. Oliver, "AZTEC, A preprocessing program for real time ECG rhythm analysis", IEEE Trans Biomed eng., vol BME -15, pp 128-129, 1968.
- 15 B. Fuhr and A. Perez, "An adaptive real time ECG compression algorithm with variable threshold", IEEE Trans Biomed eng. Vol 35, pp 489-494, 1988.
- 16 J.P. Absberstein and W.J. Tompkins "A new data reduction algorithm for real time ECG analysis", IEEE Trans Biomed. Eng., vol. 27, pp 33-40, 1989.
- 17 S.C. Tai "SLOPE - A real time ECG data compressor", Med. Biol Eng. Comput., vol 29, pp 175-179, 1991.
- 18 M. Shridharan and M.F. Stevens, "Analysis of ECG data for data compression", Int. J. Bio-Med Comput., vil 10, pp 113-128, 1979.
- 19 M.E. Womble, J.S. Halliday, S.K. Mitter, M.C. Lancaster, and J.H. Triebwasser, "Data compression for storing and transmitting ECGs/YDGs", Proc. IEEE vol 65, pp 702-706, 1977.
- 20 W.S. Kuklinski, "Fast Walsh transform data compression algorithm for ECG applications", Med. Biol. Eng. Comput., Vol 21, pp 645-473, 1983.
- 21 P. Trahanias and E. Skordalakis, "Syntactic pattern recognition of ECG", IEEE Trans Pattern anal. Machine Intell., vol 12, pp 648-657, 1990.
- 22 Iwata and Y. Nagasaka and N. Suzumura. "Data compression of the ECG using neural network for digital Holter monitor", IEEE Eng. Med. Biol. Mag., pp 53-57, Sept 1990.
- 23 S.M.S. Jalaleddine, C.G. Hutchens, R.D. Strattan, and W.A. Coberly "ECG Data compression technique-A unified approach", IEEE Trans Biomed Eng. Vol 37, pp 329-343, 1990.
- 24 S.M. Blanchard and R.C. Barr, "Comparison of methods for adaptive sampling of cardiac electrograms and ECG's", Med. Biol. Eng. Comput. Vol 23, pp 377-386, 1985.

- 26 T. Berger, Rate Distortion Theory "A Mathematical Basis for data Compression Englewood", cliffs NJ: Prentice Hall, 1971.
- 27 C.P. Mammen and B. Ramamurthi, "Vector quantization for compression of multichannel ECG", IEEE Trans Biomed Eng. Vol 37, pp 821-825, Sept 1990.
- 28 J.L. Cardenas and J.V. Lorenzo "ECG Data compression by vector quantization", presented at Int. Symp. Biomedical Engineering Santiago de Compostela, Spain Sept., 1994.
- 29 Julian L. Cardnas-Barrera and Juan Valentin Lorenzo Ginori, "Mean – shape Vector quantizer for ECG Signal Compression", IEEE Transactions on Biomedical Engineering, vol 46, no. 1, January 1999.
- 30 Pan and Tompkins, "A real Time QRS Detection Algorithm", IEEE Trans. on Biomed Engg., Vol. BME-32 No. 3, pp 230,1985.
- 31 Hamilton and Tompkins, "Quantitative Investigation of QRS Detection Rules using the MIT/BIH Arrhythmia Database", IEEE Trans on Biomed Engg., Vol. BME-33 No. 12, p-1986.
- 32 Pahlm and Sornmo "Software QRS Detection in Ambulatory Monitoring – A Review", Med. Bio. Eng. Comput., Vol – 22, 1984, pp 229-237.
- 33 Shubha Kadambe, "Wavelet Transform Based QRS Complex Detector", IEEE Transaction on Biomedical Engineering Vol, 46 No. 7, July 1999.
- 34 Jiapupan and Wills J. Tompkins, "A Real Time QRS Detection Algorithm", IEEE Transactions on biomedical engineering, vol. BME-32, no. 3, March 1985.
- 35 [www.remware.com/support.htm](http://www.remware.com/support.htm)

## References of Chapter 2

- 1 "Qualitative ECG analysis" By Ranjan Maheshwari
- 2 Bradford C. Lipman, Toni Cascio, "ECG assessment and interpretation" Jaydeep Brothers
- 3 W.J. Tompkins, "Biomedical Digital Signal Processing", Prentice Hall Englewood cliffs, New Jersey, 1993.
- 4 Gray M. Friesen, T. C. Jannet, M. A. Jadallah, S. L. Yatres, S.R. Quint, H. T. Nagle. "A Comparison of Noise Sensitivity of Nine QRS Detection Algorithms", IEEE Trans. on Biomedical Engineering, Vol. 37, No.1, January 1990.
- 5 Halliday A.M. "Evoked Potentials in Clinical Testing" Churchill Living stone Press, London 1982 pp1-120
- 6 Webster, John G (ED) "Encyclopedia of Medical Devices &

- Instrumentation", John Wiley Publication, New York Vol. II, pp 1084-1103.
- 7 "Clinical Neurology Neurosurgery monography" Vol. III 1972, pp 1-142.
- 8 Kenneth J. Ciuffreda, and Barry Tannen 1995, "Eye movement Basics for the Clinician" St. Louis: Mosby year book Inc.
- 9 <http://www.remware.com/support.htm#APDXZ>:

### References of Chapter 3

- 1 Timo Bretschneider, Boris R. Bracio, "BOOM-NT a visual tool for biomedical signal processing", Dietmar P.P. Moller Institute for Computer Science, TU Clausthal, ErzstraBe 1, 38678 Clausthal, Germany
- 2 "Adaptive filter theory" second edition Simon Haykin PH
- 3 William J. Tompkins "Biomedical digital signal processing", Editor, PHI

### References of Chapter 4

- 1 S. Grossberg, "Adaptive pattern classification and universal recording II: Feedback, expectation, olfaction and illustrations" Biolog. Cybernetics, Vol. 23, pp. 187-202, 1976
- 2 G. A. Carpenter and S. Grossberg, "A massively parallel architecture for a self – organizing neural pattern recognition machine" Computer Vision, Graphics and Image processing, Vol. 37, pp. 54-115, 1983.
- 3 "ART 2: Self Organization of stable category recognition codes for analog output patterns" Applied Optics, Vol. 26, pp 4919-4930, Dec. 1, 1987.
- 4 "ART 3 Hierarchical search: Chemical transmitters in self organizing pattern recognition architectures" in Proc. Int. Joint Conf. On Neural Networks, vol. 2, pp. 30-33 Wash. DC, Jan. 1990.
- 5 T. Kohonen, "Self Organized formation of topologically correct feature maps", Biolog. Cybernetics, vol. 43, pp. 59-69, 1982.
- 6 "Self Organization and associative memory", New york Springer-Verlag, 2d ed, 1988.
- 7 D. O. Hebb, "The Organization of Behavior", New York: Wiley, 1949.
- 8 J.J. Hopfield, "Neural Networks and physical systems with emergent collective computational abilities", Proc. Natl. Acad. Sci., Vol. 79, pp. 2554-2558, April 1982.
- 9 "Neurons with graded response have collective computational properties like those two state neurons", Proc. Natl. Acad. Sci., Vol. 81, pp. 3088-3092, May 1984.
- 10 B. Kosko, "Adaptive bidirectional associative memories", Appl. Optics, Vol. 26, pp. 4947-4960, Dec 1, 1987.

**References of Chapter 5**

- 1 W.J. Tompkins, "Biomedical Digital Signal Processing", Prentice Hall Englewood cliffs, New Jersey, 1993.
- 2 D. Tufts and R. Kumaresan, "Singular value decomposition and improved frequency estimation using linear prediction", IEEE Trans. Acoust., Speech, Signal Processing, vol. ASSP-30, pp. 671-675, Aug. 1982.
- 3 "Dynamic power line interference subtraction from bio signals", Journal of Medical Engineering & Technology Volume 24, November4, (July/August 2000) pages 169-172.
- 4 Furno G.S. Tompkins W.J. 1983 "A learning filter for removing noise interference", IEEE Transactions on biomedical Engineering 30, 234-235.
- 5 Ahlstorm M.L. and Tompkins W.J. 1985, "Digital filters for real time ECG signal processing using microprocessors", IEEE Transactions on Biomedical Engineering 32, 708-713.
- 6 Thakor N.V. and Zhu, Y.S. 1991 "Application of adaptive filtering to ECG analysis noise cancellation and arrhythmia detection", Medicine & Biological Engineering & Computing 22, 785-794.
- 7 Hamilton P.S. "A comparison of adaptive and nonadaptive filters for reduction of powerline interference in the ECG" IEEE Transactions on Biomedical Engineering vol 43, pp 105-109. 1996
- 8 Kumaravel n. amd Nithyanandam, N. 1998, "Genetic algorithm cancellation of sinusoidal powerline interference in electrocardiogram", Medical & Biological Engineering & computing 36, 191-196.
- 9 B. Widrow et. Al: "Adaptive Noise cancellation: Principles and Applications", Dec. 1975, IEEE.
- 10 Levkov C, Michov, g. Ivanov, R, and Daskalov I., 1984, "Subtraction of 50 Hz interference form the electrocardiogram" Medical & Biological Engineering & computing 22, 371-373.
- 11 Christov I.T. and Dotsinsky I.A. 1988, "New approach to the digital elimination of 50 Hz interference from the electrocardiogram", Medical & Biological Engineering & computing 26, 431-434.
- 12 Dotsinsky I.A. and Daskalov, I. K. 1996, "Accuracy of 50 Hz interference subtraction from an electrocardiogram", Medical & Biological Engineering & computing 34, 489-493.
- 13 Daskalov I.K. Dotsinsky I.A. and Christov I.I. 1998, "Devlopmnts in ECG acquisition preprocessing, parameter measurements and recording", IEEE engineering in Mediucine and Biology 17, 50-58.

- 14 Burak Acar and Hayrettin Koymen, "SVD-Based On-line Exercise ECG Signal Orthogonalization", IEEE transactions on biomedical engineering, Vol. 46, No. 3, March 1999.
- 15 G. H. Golub and C. F. Van Loan, "Matrix Computations" Baltimore, MD: Johns Hopkins Univ. Press, 1989, pp. 70-73.
- 16 Richard Grieve, Philip A. Parker, Bernard Hudings & Kevin Englehart. "Non linear Adaptive Filtering of Stimulus Artifact", IEEE Transactions on Biomedical Engineering vol., 47, No. 3, March 2000.
- 17 C. D. McGillem, J. I. Aunon, and D. G. Childers, "Signal processing in evoked potential research: Applications of filtering and pattern recognition", CRC Crit. Rev. Bioeng., vol. 9, pp. 225–265, Oct. 1981.
- 18 S. B. Harrison and D. F. Lovely, "Identification of noise sources in surface recordings of spinal somatosensory evoked potentials", Med. Biol Eng. Comput., vol. 33, pp. 299–305, 1995.
- 19 D. Regan, "Human Brain Electrophysiology", New York: Elsevier Science, 1989.
- 20 K. C. McGill, K. L. Cummins, B. B. Dorfman, L. J. Berlizot, K. Luetkemeyer, D. G. Nishimura, and B. Widrow, "On the nature and elimination of stimulus artifact in nerve signals evoked and recorded using surface electrodes", IEEE Trans. Biomed. Eng., vol. BME-29, pp. 129–137, Feb. 1982.
- 21 R. N. Scott, L. McLean, and P. A. Parker, "Stimulus artifact in somatosensory evoked potential measurement", Med. Biol. Eng. Comput., vol. 35, pp. 1–5, 1997.
- 22 J. Ye and T. T. Choy, "On-line respiratory artifact removal via adaptive FIR filters in rheopneumographic measurements", Med. Biol. Eng. Comput., vol. 32, pp. 620–624, 1994.
- 23 P. K. Sadasivan and D. N. Dutt, "A nonlinear estimation model for adaptive minimization of EOG artefacts from EEG signals", Int. J. Biomed. Comp., vol. 36, pp. 199–207, 1994.
- 24 A. Suzuki, C. Sumi, K. Nakayama, and M. Mori, "Real-time adaptive cancelling of ambient noise in lung sound measurements", Med. Biol. Eng. Comput., vol. 33, pp. 704–708, 1995.
- 25 V. Parsa, P. A. Parker, and R. N. Scott, "Adaptive stimulus artifact reduction in noncortical somatosensory evoked potential studies", IEEE Trans. Biomed. Eng., vol. 45, pp. 165–179, Feb. 1998.
- 26 "Convergence characteristics of two algorithms in nonlinear stimulus artifact cancellation for electrically evoked potential enhancement", Med.

- Biol. Eng. Comput., vol. 36, pp. 1–13, 1998.
- 27 W. G. Stevens, "The current-voltage relationship in human skin", *Med. Electron. Biol. Eng.*, vol. 1, pp. 389–399, 1963.
  - 28 Yuancheng Deng, Werner Wolf, Rudolf Schnell and Ulrich Appel. "New aspects to event-synchronous cancellation of ECG interference: An application of the method in diaphragmatic EMG signals", *IEEE Transactions on Biomedical Engineering* Vol. 47, No. 9, September 2000
  - 29 Ivaylo I. Christov, Ivan K. Daskalov. "Filtering of Electromyogram artifacts from the electrocardiogram", *Medical Engineering & Physics* 21 (1999) 731-736.
  - 30 "Subcommittee on Instrumentation Committee on Electrocardiography–American Heart Association, Recommendation for instruments in electrocardiography and vectorcardiography" *IEEE Transactions on Biomedical Engineering*, 1967 ; pp 14:60 – 8.
  - 31 Dotsinsky I, Christov I, Daskalov I, "Assessment of Metrological characteristics of digital electrocardiographs", *J Clin enging* 1996;21:156-60.
  - 32 Bensadoun Y, Novakov E, Raoof K. "Multidimensional adaptive method for canceling EMG signals from the ECG signals", In Roberge FA Kearney RE, editors 17<sup>th</sup> Ann Int conf. on the IEEE engg., in *Med and Biol Soc.*, Montreal 1995 : 299:300.
  - 33 Luo S. Tompkins WJ "Experimental study : Brachial Motion artifact reduction in the ECG", *Comp Cardiol* 1995:33-6.
  - 34 Rossi R. Casteli A, Bertinelli M., "Design of fast filters with corrected frequency response", In: Nagel JH Smith WM editors 13<sup>th</sup> Ann Int. Conf. on the IEEE Engg. In *Med and Biol Soc.*, Orlando 1991: 574-5.
  - 35 Levkov C. "Fast integer coefficient FIR filters to remove the AC interference and high frequency noise components in biological signals", *Med and Biol Eng. And Comp* 1989; 27 : 330-2.
  - 36 Ivaylo Christov Daskalov I, Ivan K. Daskalov, "Filtering of EMG artifacts from the ECG", *Medical Engineering Physics* 21(1999) 731-736, Elsevier.
  - 37 *IEEE Transaction on Biomedical Engineering* vol, 47, no. 5, May 2000 "A Transform Domain SVD for Supression of Muscle Noise Artefacts in Exercise ECG's", Joseph Suresh Paul, M. Ramasubba Reddy and Varadarajan Jagadeesh Kumar.
  - 38 A. Cohen and D. Landsberg, "Adaptive real-time wavelet detection", *IEEE Trans. Biomed. Eng.*, vol. BME-30, pp. 332–338, June 1983.

- 39 H. H. Ros and A. S. M. Koeleman, "The technique of signal averaging and its practical applications in the separation of atrial, and His-Purkinje activity in Signal Averaging Technique in Clinical Cardiology", Stuttgart, Germany: Schattauer, 1981.
- 40 M. J. Evanich, O. Newberry, and L. D. Partridge, "Some limitations of periodic noise removal by averaging techniques", *J. Appl. Physiol.*, vol. 33, pp. 536–541, 1972.
- 41 M. L. Simoons, H. B. K. Boom, and E. Smallenburg, "On-line processing of orthogonal exercise electrocardiograms", *Comput. Biomed. Res.*, vol. 8, pp. 105–117, 1975.
- 42 N. C. Flower, V. Shvartsman, and B. M. Kenelly, "Surface recording of His-Purkinje activity on every-beat basis without digital averaging", *Circulation*, vol. 63, pp. 948–952, 1972.
- 43 El-Sherif, N. R. Mehra, J. A. C. Gomes, and G. Kelen, "Appraisal of a low noise electrocardiogram", *J. Amer Coll. Cardiol.*, vol. 1, pp. 456–467, 1983.
- 44 J. L. Talmon, J. A. Kors, and J. H. Von Bommel, "Adaptive Gaussian filtering in routine ECG/VCG analysis", *IEEE Trans. Acoust., Speech, Signal Processing*, vol. ASSP-34, pp. 527–534, June 1986.
- 45 O. J. Escalona, R. H. Mitchell, D. E. Balderson, and D.W. Harron, "Approach to the design of linear phase FIR filters with variable characteristics", *Signal Processing*, vol. 14, pp. 313–326, 1988.
- 46 B. Widrow, J. R. Glover, Jr. J. McCool, J. Kaintiz, C.S. Williams, R. H. Hearn, J. R. Zeidler, E. Dong, Jr., And R.C. Goodlin "Adaptive noise canceling : principles and applications" *Proc. IEEE* vol 63, pp 1692-1716, Dec. 1975.
- 47 T.A. C.M. Classen and W.F.G. Mecklenbrauker, "Comparison of the convergence of two adaptive algorithms for FIR digital filters", *IEEE Trans. Acoust Speech signal processing* vol ASSP 29, pp 670-678, June 1981.
- 48 M.M.Sondhi and D. A. Berkley, "Silencing echoes on the telephone networks", *Proc. IEEE*, vol. 68, pp. 948-963, Aug. 1980.
- 49 N. Verhoeck, H. Van den Elzen, F. Snijders, and P. Gerwen, "Digital echo cancellation for baseband data transmission", *IEEE Trans.,Acoust., Speech, signal processing*, vol. ASSP-27, pp. 768-781, Dec 1979.
- 50 K. H. Mueller, "A new echo canceller for two-wire full-duplex data transmission", *IEEE Trans. Commun.*, vol. COM – 24, pp. 956-962, Sept. 1976.
- 51 M. Sambur, "Adaptive noise canceling for speech signal " *IEEE Trans Acoust speech signal processing*, vol ASSP 26, pp 419-423 Oct. 1980.

- 52 S. Boll and D. Pulsipher, "Suppression of acoustic noise in speech using two microphone adaptive noise cancellation", IEEE Trans. Acoust., Speech, signal processing, Vol ASSP-28, PP 752-753, Dec 1980.
- 53 J. R. Glover Jr. "Adaptive noise canceling applied to sinusoidal interference", IEEE Trans Acoust speech Signal processing vol ASSP-25, pp 484-491, Dec 1977.
- 54 Christopher J. James, Martin T. Hagan, Richard D. Jones, Philip J. Bones and Grant J. Carroll "Multireference Adaptive Noise Cancelling Applied to the EEG", IEEE Transactions on Biomedical engineering vol 44, no.8, August 1997.
- 55 A.A. dingle, R. D. Jones, G. J. Carroll and W.R. Fright, "A Multistage system to detect epileptiform activity in the EEG", IEEE Trans Biomed Eng. Vol 40, pp 1260-1268, 1983.
- 56 J. R. Glover Jr., N. Raghvan, P.O. Y. Ktons, and J.D. Frost, Jr., "Context based automated detection of epileptogenic sharp transients in the EEG; Elimination of false positives", IEEE Trans Biomed. Eng. Vol 36, pp519-527 1989.
- 57 J. Gotman, "Automatic recognition of interictal spikes" in long Term Monitoring in Epilepsy EEG Supplement" no. 37, J. Gotman, J. R. Ives, and P. Gloor, Eds. New York Elsevier, 1985, pp 99-114.
- 58 G.E. Chatrian, L. Bergamini, M. Dondey, D. W. Klass, I. Peterson, and M. Lennox-Budhtall, "A Glossary of terms most commonly used by clinical electroencephalographers", Electroenceph. Clin. Neurophysiol vol 37, pp 358-548, 1974.
- 59 A. J. Gabor and M. Seyal "Automated interictal EEG spike detection using artificial neural networks", Electroenceph cin. Neurophysiol vol 83, pp 271-280, 1992.
- 60 W.R.S. Webber, B. Litt, K. Wilson and R.P. Lesser, "Practical detection of epileptiform discharges (ED's) in the EEG using an artificial neural network: A comparison of raw and parameterized EEG data", Electroenceph clin. Neurophysiol vol 91 pp 194-204, 1994.
- 61 F. H. Lopes da Silva, A. Djik, and H. Smits, "Detection of nonstationarities in EEG's using the autoregressive model—An application to EEG's of epileptics", in CEAN: Computerized EEG Analysis, G. Dolce and H. Kunkel, Eds. Stuttgart: Gustav Fischer Verlag, 1975, pp. 180–199.
- 62 B. Widrow, J. R. Glover, J. M. McCool, J. Kaunitz, C. S. Williams, R. H. Hearn, J. R. Zeidler, E. Dong, and R. C. Goodlin, "Adaptive noise

- canceling: Principles and applications", Proc. IEEE, vol. 63, pp. 1692–1716, 1975.
- 63 Sven Ole Aase, Trygve Eftestol, John Hakon Husoy, Kjetil Sunde and Petter Andreas Steen IEEE "CPR Artifact Removal from Human ECG using Optimal Multichannel Filtering", Transactions on Biomedical Engineering vol, 47, no. 11, November 2000.
  - 64 M. P. Larsen, M. S. Eisenberg, R. O. Cummins, and A. P. Hallstrom, "Predicting survival from out-of-hospital cardiac arrest: A graphic model" Ann. Emerg. Med., vol. 22, pp. 1652–1658, 1993.
  - 65 I. G. Stiell, G. A. Wells, V. J. DeMaio, D. W. Spaite, B. J. Field, D. P. Munkley, M. B. Lyver, L. G. Luinstra, and R. Ward, "Modifiable factors associated with improved cardiac arrest survival in a multicenter basic life support/defibrillation system: OPALS study phase I results", Ann. Emerg. Med., vol. 33, pp. 44–50, 1999.
  - 66 American Heart Association, "Guidelines for cardiopulmonary resuscitation and emergency cardiac care" J. Amer. Med. Assoc., vol. 268, pp. 2171–2302, 1992.
  - 67 C. Robertson, P. Steen, J. Adgey, L. Bossaert, P. Carli, D. Chamberlain, and W. Dick *et al.*, "The 1998 European Resuscitation Council guidelines for adult advanced life support", Resuscitation, vol. 37, pp. 81–90, 1998.
  - 68 R. V. Ditchey, Y. Goto, and J. Lindenfield, "Myocardial oxygen requirements during experimental cardiopulmonary resuscitation", Cardiovasc. Res., vol. 26, pp. 791–797, 1992.
  - 69 J. D. Michenfelder and R. A. Theye, "The effects of anesthesia and hypothermia on canine cerebral ATP and lactate during anoxia produced by decapitation", Anesthesiology, vol. 33, pp. 430–439, 1970.
  - 70 M. Noc, M. H. Weil, R. Gazmuri, S. Sun, J. Biscera, and W. Tang, "Ventricular fibrillation voltage as a monitor of the effectiveness of cardiopulmonary resuscitation", J. Lab. Clin. Med., vol. 124, no. 3, pp. 421–426, 1994.
  - 71 K. B. Kern, H. S. Garewal, A. B. Sanders, W. Janas, J. Nelson, D. Sloan, W. A. Tacker, and G. A. Ewy, "Depletion of myocardial adenosine triphosphate during prolonged untreated ventricular fibrillation: Effect on defibrillation success", Resuscitation, vol. 20, pp. 221–229, 1990.
  - 72 Y. Sato, M. H. Weil, S. Sun, W. Tang, J. Xie, M. Noc, and J. Biscera, "Adverse effects of interrupting precordial compression during cardiopulmonary resuscitation", Crit. Care Med., vol. 25, pp. 733–736, 1997.

- 73 K. Sunde, T. Eftestøl, C. Askenberg, and P. A. Steen, "Quality assessment of defibrillation and ALS using data from the medical control module of the defibrillator", *Resuscitation*, vol. 41, pp. 237–247, 1999.
- 74 W. D. Weaver, M. K. Copass, D. Bufi, R. Ray, A. P. Hallstrom, and L. A. Cobb, "Improved neurologic recovery and survival after early defibrillation", *Circulation*, vol. 69, pp. 943–948, 1984.
- 75 M. L. Sedgwick, K. Dalziel, D. J. Carrington, and S. M. Cobbe, "Performance of an established system of first responder out-of-hospital defibrillation. The results of the second year of the Heartstart Scotland project in the "Utstein style", *Resuscitation*, vol. 26, pp. 75–88, 1993.
- 76 K. M. Hargarten, H. A. Stueven, E. M. Waite, D. V. Olson, J. R. Mateer, T. P. Aufderheide, and J. C. Darin, "Prehospital experience with defibrillation of coarse ventricular fibrillation: A ten-year review", *Ann. Emerg. Med.*, vol. 19, pp. 157–162, 1990.
- 77 B. E. Gliner, D. B. Jorgensen, J. E. Poole, R. D. White, K. G. Kanz, T. D. Lyster, K. W. Leyde, D. J. Powers, C. B. Morgan, R. A. Kronmal, and G. H. Bardy, "Treatment of out-of-hospital cardiac arrest with a lowenergy impedance-compensating biphasic waveform automatic external defibrillator", *Biomed. Instrum. Technol.*, vol. 32, pp. 631–644, 1998.
- 78 H.-U. Strohmenger, K. H. Lindner, I. M. Lindner, and E. G. Pfenninger, "Spectral analysis of ventricular fibrillation and closed-chest cardiopulmonary resuscitation", *Resuscitation*, vol. 33, no. 2, pp. 155–161, 1996.
- 79 M. Noc, M. H. Weil, W. Tang, S. Sun, J. Biscera, and A. Pernat, "Electrocardiographic prediction of the success of cardiac resuscitation", *Critical Care Medicine*, vol. 27, no. 4, pp. 708–714, 1999.
- 80 L. A. Cobb *et al.*, "Influence of cardiopulmonary resuscitation prior to defibrillation in patients with out-of-hospital ventricular fibrillation", *The Journal of the American Medical Association*, vol. 281, no. 13, pp. 1182–1188, 1999.
- 81 A. Langhelle, T. Eftestøl, K. Sunde, B. T. Holten, and P. A. Steen, "Reducing CPR artifacts in VF in vitro", *Resuscitation*, to be published.
- 82 K. Sunde, L. Wik, P. A. Næss, A. Ilebekk, G. Nicolaisen, and P. A. Steen, "Effects of different compression-decompression cycles on haemodynamics during ACD-CPR in pigs", *Resuscitation*, vol. 36, pp. 123–131, 1998.
- 83 K. Sunde, L. Wik, P. A. Næss, F. Grund, G. Nicolaisen, and P. A. Steen, "Improved haemodynamics with increased compression-decompression rates during ACD-CPR in pigs", *Resuscitation*, vol. 39, pp. 197–205, 1998.

- 84 K. B. Kern, A. B. Sanders, J. Raife, M. Milander, C. W. Otto, and G. A. Ewy, "A study of chest compression rates during cardiopulmonary resuscitation in humans", *Arch. Intern. Med.*, vol. 152, pp. 145–149, 1992.
- 85 S. Selvan and R. Srinivasan "Adaptive Filtering Techniques using Neural Networks", *IETE Technical Review* Vol. 17, no. 3, May –June 2000 pp 111-118
- 86 S. Haykin, : "Neural networks expand SP's horizon", *IEEE Signal Processing Magazine*, Vol 13, no 2, pp 24-49.1996.
- 87 Q Xue, Y H Hu & W J Tompkins, "Neural network based adaptive filtering for QRS detection", *IEEE Trans Biomedical Engineering* , Vol 39,pp317-329 April 1992.
- 88 C. J. James, M.T. Hagan, R. D. Jones, P J Bones & G.J Carrol "Multireference adaptive noise canceling applied to the EEG, *IEE Trans Biomedical Engineering*" Vol 44, pp 775-779 August.1997.
- 89 Chuan Wang and Jose C. Principe "Training Neural Networks with Additive Noise in the Desired Signal", *IEEE Transactions on Neural Networks* Vol 10, No. 6 November 1999.
- 90 S. Fahlman, "Fast-learning variations on backpropagation: An empirical study", in *Proc. 1988 Connectionist Model Summer School*. San Mateo, CA: Morgan Kaufmann.
- 91 G. E. Hinton, "Connectionist learning procedure", in *Machine Learning: Paradigms and Methods*, J. G. Carbonell, Ed. Cambridge, MA: MIT Press, 1989, pp. 185–234.
- 92 T. Rognvaldsson, "On Langevin updating in multilayer perceptrons", *Neural Comput.*, vol. 6, pp. 916–926, 1994.
- 93 A. Krogh and J. Hertz, "Generalization in a linear perceptron in the present of noise", *J. Phys. A: Math. Gen.*, vol. 25, 1992, pp. 1135–1147.
- 94 H. Kushner, "Asymptotic global behavior for stochastic approximation and diffusions with slowly decreasing noise effects: Global minimization via Monte Carlo", *SIAM J. Appl. Math.*, vol. 47, no. 1, Feb. 1987.
- 95 L. Holmstrom and P. Koistinen, "Using additive noise in backpropagation training", *IEEE Trans. Neural Networks*, vol. 3, 1992.
- 96 C. Bishop, "Neural Networks for Pattern Recognition", Oxford, U.K.: Oxford Univ. Press, 1995.
- 97 K. Matsuoka, "Noise injection into inputs in back-propagation learning", *IEEE Trans. Syst., Man, Cybern.*, vol. 22, no. 3, 1992.
- 98 G. An, "The effects of adding noise during back propagation training on a eneralization performance", *Neural Comput.*, vol. 8, pp. 643–674, 1996.

- 99 Y. Grandvalet and S. Canu, "A comment on noise injection into inputs in back-propagation learning", *IEEE Trans. Syst., Man, Cybern.*, vol. 25, 1995.
- 100 R. Reed, R. J. Marks, II, and S. Oh, "Similarities of error regularization sigmoid gain scaling, target smoothing, and training with jitter", *IEEE Trans. Neural Networks*, vol. 6, 1995.
- 101 A. R. Webb, "Functional approximation by feed forward networks: A least squares approach to generalization", *IEEE Trans. Neural Networks*, vol. 5, Mar. 1994.
- 102 Pablo Laguna Raimon Jane and Pere Caminal "A Time Delay Estimator Based on the signal Integral: Theoretical Performance and Testing on ECG Signals", *IEEE Transactions on signal processing* vol 42, no. 11, November (Correspondence).

### References of Chapter 6

- 1 Yaniv Zigel, Arnon Cohen and Amos Katz, "ECG Signal Compression Using Analysis by Synthesis Coding", *IEEE Transaction on Biomedical Engineering* vol, 47, no. 10, Oct 2000
- 2 G. Nave and A. Cohen "ECG compression using long term prediction", *IEEE Trans biomed eng.* Vol 40 pp 877-885, Sept 1993.
- 3 e. Ruttiman and H.V. Pipeberger, "Compression of the ECG by or interpolation and entropy encoding" *IEEE Trans Biomed. Eng.*, vol BME-26, 613-623, 1979.
- 4 T. Berger, "Rate Distortion Theory: A Mathematical Basis for data Compression" Englewood cliffs NJ: Prenticwe Hall, 1971.
- 5 C.P. Mammen and B. Ramamurthi, "Vector quantization for compression of multichannel ECG", *IEEE Trans Biomed Eng.* Vol 37, pp 821-825, Sept 1990.
- 6 J.L. Cardenas and J.V. Lorenzo "ECG Data compression by vector quantization", presented at Int. Symp. Biomedical Engineering Santiago de Compostela, Spain Sept., 1994.
- 7 Wilphred Philips, Geert DeJonghe, "Data Compression of ECG's by high degree polynomial; approximation", *IEEE Transactions on Biomedical Engineering*, vol 39, pp 330-336, Apr. 1992.
- 8 "An Adaptive Correlation Based Data Compression Method For ECG", Joseph S. Paul, V. Jagadeesh Kumar and M.R.S. Reddy.
- 9 Patrick S. Hamilton and Willis J. Tompkins, "Compression of the ambulatory ECG by average beat subtraction and residual differencing", *IEEE Transactions on Biomedical Engineering* Vol. 38, No. 3, March 1991

- 10 J.P. Abenstein and W.J. Tompkins "A new data reduction algorithm for real time ECG analysis", IEEE Trans Biomed Eng. Vol. BME 29 pp 43-48, Jan 1982.
- 11 U. E. Ruttiman and H. V. Piberger "Compression of the ECG prediction or interpolation and entropy encoding", IEEE Trans Biomed eng. Vol BME-26, pp 613-623, Nov. 1979.
- 12 A. Cohen, P.M. Poluta and R. Scott-Millar "Compression of ECG Signals using vector quantization", in Proc. IEEE 90 S.A. Symp. Communications and signal processing Johnnesburg 1990 COMSIG-90 pp 45-54.
- 13 "OFF Line Coding of Multichannel ECG", S. Saha and A.G. Ramakrishnan]
- 14 Y. Zigel. (1998, Aug.) "ECG Signal Compression", Electr. Comput. Eng. Dept., Ben-Gurion University, Beer-Sheva, Israel.
- 15 "Scan -Alone Polygonal Approximation for Data compression of ECG", IEEE transaction on Biomedical Engineering, Vol 30, No. 11, Nov. 1983
- 16 N. Ahmed, P. J. Milne and S.G. Haris, "Electrocardiographic data compression via orthogonal transform", IEEE Trans Biomed eng., vol. 22, pp 484-487, June 1975.
- 17 M.E. Womble, J.S. Halliday, S.K. Mitter, M. C. Lancaster, and J.H. Tribewasser, "Data compression for storing and transmitting ECGs/VCGs", Proc. IEEE vol. 65, pp 702-706, May 1977.
- 18 A.M. Zeid and M.E. womble, "Application of partitioned Karhunen-Loeve expansion scheme of ECG/VCG data compression", Proc. VIII N. England Bio-Eng., Conf. 1979, pp 102-105.
- 19 S. Tsuda, K. Shimizu and G. Matsumoto", Data compression of ECG by optimal orthogonal transform technique", IEICE Trans vol., J68-D, no 12, pp 2064-2072, 1985.
- 20 B.R. Shankara and I.S.N. Murthy, "ECG Data compression using Fourier descriptors", IEEE Trans Biomed Eng. Vol 33, pp. 428-433, Apr. 1986.
- 21 N. Thakor, Y. Sun, H. Rix, and P. Caminal, "Multiwave: A wavelet based ECG data compression algorithm", IEICE Trans Inform. Syst. Vol E76-D, no. 12, pp 1462-1469, 1993.
- 22 J. Chen, S. Itch and T. Hasimeto, "ECG data compression by using wavelet transform", IEICE Trans Inform. Syst., vol E76-D, no. 12, pp 1454-1461, 1993.
- 23 M. Hilton, "Wavelet and wavelet packet compression electrocardiograms", IEEE Trans Biomed Eng. Vol 44, pp 394-402, May 1997.

- 24 A.G. Ramkrishnan and S. Saha "ECG coding by wavelet –based linear prediction", IEEE Trans Biomed vol 44, pp 394-402 May 1997.
- 25 S.Jalaleddine, C. Hutchens, R. Strattan, and W. Coberly, "ECG data compression techniques – A unified approach", IEEE Trans Biomedical Engineering Vol. 37, pp 329-343, Apr 1990.
- 26 Jie Chen, Shuichi Itoh Jie Chen, Shuichi Itoh "A wavelet Transform Based ECG Compression Method Guranteeing Desired Signal Quality", IEEE Transactions on Biomedical Engineering, Vol 45. No. 12, December 1998.
- 27 Zhitao Lu, Dong Youn Kim and William A. Pearlman "Wavelet Compression of ECG Signals by the set portioning in Hierarchial Trees Algorithm", IEEE Transactions Biomedical Engineering vol. 47, no. 7, July 2000
- 28 S.Jalaleddine, C. Hutchens, R. Strattan, and W. Coberly, "ECG data compression techniques – A unified approach", IEEE Trans Biomed Eng. Vol. 37, pp 329-343, Apr 1990.
- 29 B.R. Shankara and I.S.N. Murthy, "ECG Data compression using Fourier descriptors", IEEE Trans Biomed Eng. Vol 33, pp. 428-433, Apr. 1986.
- 30 A. Said and W.A. Pearlman, "A new fast and efficient image codec based on set partitioning in hierarchial trees", IEEE Trans. Circuits Syst. II, vol 6, pp 243-250 June 1996.
- 31 M. Antonini, M. Barlaud, P. Mathieu, and I. Daubechies, "Image coding using wavelet transform", IEEE Trans. Image Processing, vol. 1, pp. 205–220, Apr. 1992.
- 32 Z. Lu and W. A. Pearlman, "An efficient, low-complexity audio coder delivering multiple levels of quality for interactive applications", in Proc. 1998 IEEE 2nd Workshop Multimedia Signal Processing, Redondo Beach, CA, Dec. 7–9 1998, pp. 529–534.
- 33 Sabah Mohamed Ahmeda, Mohammed Abo-Zahhad, "A new hybrid algorithm for ECG signal compression based on the wavelet transformation of the linearly predicted error", Medical Engineering & Physics 23 (2001) p 117-126
- 34 R. M. Gray, "Vector quantization", IEEE Acoust., Speech, Signal Processing, Mag., vol. 1, pp. 4–29, Apr. 1984.
- 35 A. Gersho and R. M. Gray, "Vector Quantization and Signal Compression", Boston, MA: Kluwer, 1990.
- 36 N. Jayant, "Signal compression: Technology targets and research directions", IEEE. J. Select. Areas Commun., vol. 10, pp. 796–818, June 1992.

- 37 T. Berger, "Rate Distortion Theory: A Mathematical Basis for Data Compression", Englewood Cliffs, NJ: Prentice-Hall, 1971.
- 38 K. Anant, F. Dowla, and G. Rodrigue, "Vector quantization of ECG wavelet coefficient", *IEEE Signal Processing Lett.*, vol. 2, no. 7, pp. 129–131, July 1995.
- 39 J. L. Cardenas and J. V. Lorenzo, "ECG data compression by vector quantization", presented at Int. Symp. Biomedical Engineering, Santiago de Compostela, Spain, Sept. 1994.
- 40 B. Wang and G. Yuan, "Compression of ECG data by vector quantization", *IEEE Eng. Med. Biol. Mag.*, July/Aug. 1997, pp. 23–26.
- 41 Shaou Gang Miaou, Heng –Lin-yen "Quality Driven Gold Washing Adaptive Vector Quantization and Its Application to ECG Data Compression", *IEEE Transactions on Biomedical Engineering* vol 47, no. 2, February 2000.
- 42 Juli'an L. C'ardenas-Barrera and Juan Valent'yn Lorenzo-Ginori, "Mean-Shape Vector Quantizer for ECG Signal Compression", *IEEE Transactions on Biomedical Engineering* VOL. 46, NO. 1, January 1999.
- 43 G. D. Barlas and E. S. Skordalakis, "A novel family of compression algorithms for ECG and other semiperiodical, one-dimensional, biomedical signals", *IEEE. Trans. Biomed. Eng.*, vol. 43, pp. 820–828, Aug. 1996.
- 44 U. E. Ruttiman and H. V. Pipberger, "Compression of the ECG by prediction or interpolation and entropy encoding", *IEEE Trans. Biomed. Eng.*, vol. BME-26, pp. 613–623, 1979.
- 45 A. Iwata, Y. Nagasaka, and N. Suzumura, "Data compression of the ECG using neural network for digital Holter monitor", *IEEE Eng. Med. Biol. Mag.*, Sept. 1990, pp. 53–57.
- 46 Y. Nagasaka and A. Iwata, "Data compression of long time ECG recording using BP and PCA neural networks", *IEICE Trans. Inform. Syst.*, vol. E76-D, no. 12, pp. 1434–1442, Dec. 1993.
- 47 W. J. Tompkins, "Biomedical Digital Signal Processing", Englewood Cliffs, NJ: Prentice-Hall, 1993.
- 48 J. Cox, F. Nulle, H. Fozzard, and G. Oliver, "AZTEC, a preprocessing program for real-time ECG rhythm analysis", *IEEE. Trans. Biomed. Eng.*, vol. BME-15, pp. 128–129, Apr. 1968.
- 49 X. B. Huang, M. J. English, and R. Vincent, "Fast ECG data compression algorithms suitable for microprocessor systems", *J. Biomed. Eng.*, vol. 14, pp. 64–68, Jan. 1992.

- 50 R. N. Horspool and W. J. Windels, "ECG compression using Ziv-Lempel techniques", *Comput., Biomed. Res.*, vol. 28, pp. 67–86, 1995.
- 51 M. E. Womble, J. S. Halliday, S. K. Mitter, M. C. Lancaster, and J. H. Triebwasser, "Data compression for storing and transmitting ECGs/VCG's", *Proc. IEEE*, vol. 65, pp. 702–706, May 1977.
- 52 B. R. S. Reddy and I. S. N. Murthy, "ECG data compression using Fourier descriptors", *IEEE Transaction on Biomedical Engineering*, vol. BME-33, no. 4, pp. 428–434, Apr. 1986.
- 53 H. A. M. Al-Nashash, "ECG data compression using adaptive Fourier coefficients estimation", *Med. Eng. Phys.*, vol. 16, pp. 62–66, Jan. 1994.
- 54 S. C. Tai, "Improving the performance of electrocardiogram sub-band coder by extensive Markov system", *Med. Biol. Eng., Comput.*, vol. 33, pp. 471–475, May 1995.
- 55 J. A. Crowe, N. M. Gibson, M. S. Woolfson, and M. G. Somekh, "Wavelet transform as a potential tool for ECG analysis and compression", *J. Biomed Eng.*, vol. 14, pp. 268–272, May 1992.
- 56 K. Anant, F. Dowla, and G. Rodrigue, "Vector quantization of ECG wavelet coefficient", *IEEE Signal Processing Lett.*, vol. 2, no. 7, pp. 129–131, July 1995.
- 57 H. Imai, N. Kimura, and Y. Yoshida, "An efficient encoding method for electrocardiography using spline functions", *Syst. Comput. Jpn.*, vol. 16, no. 3, pp. 85–94, 1985.
- 58 G. D. Barlas and E. S. Skordalakis, "A novel family of compression algorithms for ECG and other semiperiodical, one-dimensional, biomedical signals", *IEEE. Trans. Biomed. Eng.*, vol. 43, pp. 820–828, Aug. 1996.
- 59 C. P. Mammen and B. Ramamurthi, "Vector quantization for compression of multichannel ECG", *IEEE Trans. Biomed. Eng.*, vol. 37, pp. 821–825, Sept. 1990.
- 60 W. Philips and G. D. Jonghe, "Data compression of ECG's by highdegree polynomial approximation", *IEEE. Trans. Biomed. Eng.*, vol. 39, pp. 330–337, Apr. 1992.
- 61 W. Philips, "ECG data compression with time-warped polynomials", *IEEE Trans. Biomed. Eng.*, vol. 40, pp. 1095–1101, Nov. 1993.
- 62 W. C. Chu and N. K. Bose, Fellow, IEEE "Vector Quantization of Neural Networks", *IEEE Transactions on Neural Networks* Vol. 9 No. 6 November 1998.
- 63 A. Gersho and R. M. Gray, "Vector Quantization and Signal Compression" Boston: Kluwer, 1992

- 64 N. Tishby, "A dynamic system approach to speech processing", in Proc. IEEE Int. Conf. Acoust. Speech Signal Process, Albuquerque, NM, Apr. 1990, pp. 365-368.
- 65 Sandro Ridella, Stefano Rovetta, and Rodolfo Zunino, "Circular Backpropagation Networks Embed Vector Quantization", IEEE Transactions on Neural Networks Vol. 10, No 4 July 1999.
- 66 Naidu and Reddy "Multi channel scan along polygonal approximation for ECG data compression", Biomedical Engineering Division, IIT, Madras.

### References of Chapter 7

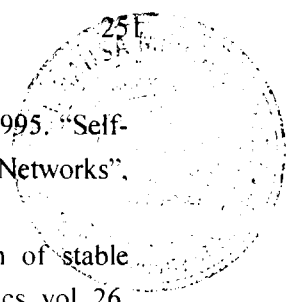
- 1 Pan and Tompkins, "A real Time QRS Detection Algorithm", IEEE Trans. On Biomed Engg., Vol. BME-32 No. 3, pp 230, 1985.
- 2 M. Okada, "A digital filter for the QRS complex detection", IEEE Transactions. Biomedical. Engineering, vol.26, pp. 700-703, Dec. 1979.
- 3 Hamilton and Tompkins, "Quantitative Investigation of QRS Detection Rules using the MIT/BIH Arrhythmia Database", IEEE Trans. On Biomed. Engg., Vol. BME – 33, No. 12, 1986.
- 4 Pahlm and Sörnmo "Software QRS Detection in Ambulatory Monitoring – A Review", Med. Bio. Eng. Comput., Vol – 22, 1984, pp 229-237
- 5 Shubha Kadambe "Wavelet Transform Based QRS Complex Detector", IEEE Transaction on Biomedical Engineering Vol, 46 No. 7, July 1999
- 6 de Chazal, P and Reilly, "Automatic Classification of ECG Beats using Waveform Shape and Heart Beat Interval Features", International Conference on Acoustics, Speech and Signal Processing (ICASSP'03), 6-10 April 2003, Hong Kong, China; p. II-269-72 vol.2.
- 7 Cheng, WT and KL Chan, "Classification of Electrocardiogram using Hidden Markov Models", Proceedings of the 20<sup>th</sup> Annual International Conference of the IEEE Engineering in Medicine and Biology Society, vol. 20, no. 1, 1998.
- 8 Risk, MR et al., "Beat Detection and Classification of ECG using Self Organizing Maps", Proceedings of the 19<sup>th</sup> International Conference of the IEEE Engineering in Medicine and Biology Society, vol. 19, no. 2, 1997.
- 9 Emilio Soria-Olivas, Marcelino Martínez-Sober, Javier Calpe-Maravilla, Juan Francisco Guerrero-Martínez, Javier Horro-Gascó, and José Espí-López, "Application of Adaptive Signal Processing for Determining the Limits of P and T Waves in an ECG", IEEE Transactions on biomedical engineering, Vol. BME - 32, No. 3, March 1985.

- 10 B. Widrow and J. R. Glower, J. M. McCool, J. Kaunitz, C. S. Williams, R. H. Hearn, J. R. Zeidler, E. Dong, and R. C. Goodlin, "Adaptive noise canceling: Principles and applications", *Proc. IEEE*, vol. 63, pp. 1692–1716, Dec. 1975.
- 11 Jose Garcia Leif Sörnmo "Automatic Detection of ST –T Complex changes on the ECG Using Filtered RMS Difference series- Application to Ambulatory Ischemia Monitoring", *IEEE Transactions on Biomedical Engineering*, vol. 47, No.9 September 2000.
- 12 L. Senhadji, J. Bellanger, G. Carrault, and J. Coatrieux, "Wavelet analysis of ECG signals", in *Proc. Annu. Int. Conf. IEEE EMBS*, vol. 12, pp. 811–812, 1990.
- 13 Y. Birnbaum and S. Sclarovsky, A. Blum, A. Mager and U. Cabbay, "Prognostic myocardial infarction", *Chest*, vol. 103, pp. 1681–87, June 1992.
- 14 Y. Birnbaum and S. Sclarovsky, "The initial electrocardiographic pattern in acute myocardial infarction: Correlation with the underlying coronary anatomy and prognosis", *Ann. Noninvasive Electrocardiol.*, vol. 2, no. 3, pp. 279–91, July 1997.
- 15 J. García, G. Wagner, L. Sörnmo, S. Olmos, P. Lander, and P. Laguna, "Temporal evolution of traditional vs. transformed ECG-based indexes in patients with induced myocardial ischemia", *J. Electrocardiol.*, vol. 33, no. 1, pp. 37–47, 2000.
- 16 P. Laguna, G. B. Moody, J. García, A. L. Goldberger, and R. G. Mark, "Analysis of the ST-T complex of the electrocardiogram using the Karhunen–Loève transform: Adaptive monitoring and alternans detection", *Med. Biol. Eng. Comput.*, vol. 37, pp. 175–189, 1999.
- 17 J. García, P. Lander, L. Sörnmo, S. Olmos, G. Wagner, and P. Laguna, "Comparative study of local and Karhunen–Loève based ST-T indexes in recordings from human subjects with induced myocardial ischemia", *Comput. Biomed. Res.*, vol. 31, no. 4, pp. 271–292, 1998.
- 18 J. García, G. Wagner, L. Sörnmo, P. Lander, and P. Laguna, "Identification of the occluded artery in patients with myocardial ischemia induced by prolonged PTCA using traditional vs. transformed ECG-based indexes", *Comput. Biomed. Res.*, vol. 32, no. 5, pp. 470–482, 1999.
- 19 K.W. Clark, P.W. McLearn, R. G. Kortas, C. N. Mead, and L. J. Thomas, "Argus/2h detection of ST-segment changes in ambulatory ECG recordings", in *Computers in Cardiology*. Los Alamitos, CA: IEEE Comput. Soc. Press, 1980, pp. 27–31.

- 20 A. Gallino, S. Chierchia, G. Smith, M. Croom, M. Morgan, C. Marchesi, and A. Maseri, "Computer system for analysis of ST segment changes on 24 hour Holter monitor tapes: Comparison with other available systems", *JACC*, vol. 4, no. 2, pp. 245–252, 1984.
- 21 C. M. Anderson, D. A. Bragg-Remschel, and D. C. Harrison, "An algorithm to analyze ST segment changes during ambulatory monitoring", in *Computers in Cardiology*. Los Alamitos, CA: IEEE Comput. Soc. Press, 1981, pp. 225–228.
- 22 S. J. Weisner, W. J. Tompkins, and B. M. Tompkins, "A compact, microprocessor-based ECG ST-segment analyzer for the operating room", *IEEE Trans. Biomed. Eng.*, vol. BME-29, pp. 642–649, Sept. 1982.
- 23 M. E. Nygård, I. Ringqvist, T. Åhrén, K. Johansson, T. Jonason, L. Lundin, G. Nilsson, and A. Walker, "Automated analysis of ST segment changes in ambulatory ECG recordings", in *Computers in Cardiology*. Los Alamitos, CA: IEEE Comput. Soc. Press, 1983, pp. 89–92.
- 24 M. Hubelbank, C. L. Feldman, S. P. Glasser, P. I. Clark, and B. A. Polan, "ST analysis of Holter tapes", in *Computers in Cardiology*. Los Alamitos, CA: IEEE Comput. Soc. Press, 1984, pp. 269–272.
- 25 P. W. Hsia, J. M. Jenkins, Y. Shimoni, K. P. Gage, J. T. Santinga, and B. Pitt, "An automated system for ST segment and arrhythmia analysis in exercise radionuclide ventriculography", *IEEE Trans. Biomed. Eng.*, vol. BME-33, pp. 585–593, June 1986.
- 26 S. Akselrod, M. Norymberg, I. Peled, E. Karabelnik, and M. S. Green, "Computerized analysis of ST segment changes in ambulatory electrocardiograms", *Med. Biol. Eng. Comput.*, vol. 25, pp. 513–519, 1987.
- 27 T. L. Shook, V. Valvo, M. Hubelbank, C. L. Feldman, and P. H. Stone, "Validation of a new algorithm for detection and quantification of ischemic ST segment changes during ambulatory electrocardiography", in *Computers in Cardiology*. Los Alamitos, CA: IEEE Comput. Soc. Press, 1987, pp. 57–62.
- 28 F. Jager, R. G. Mark, and G. B. Moody, "Analysis of transient ST segment changes during ambulatory monitoring", in *Computers in Cardiology*, Los Alamitos, CA: IEEE Comput. Soc. Press, 1991, pp. 453–456.
- 29 A. Taddei, G. Costantino, R. Silipo, M. Emdin, and C. Marchesi, "A system for the detection of ischemic episodes in ambulatory ECG", in *Computers in Cardiology*, Los Alamitos, CA: IEEE Comput. Soc. Press, 1995, pp. 705–708.

- 30 Valtino X. Afonso, Willis J. Tompkins, Truong Q. Nguyen, Shen Luo. "ECG Beat Detection Using Filter Banks", IEEE Transactions on Biomedical Engineering Vol. 46, No. 2, February 1999.
- 31 P. Vaidyanathan, "Multirate Systems and Filter Banks", Englewood Cliffs, NJ: Prentice-Hall, 1993.
- 32 G. Strang and T. Q. Nguyen, "Wavelets and Filter Banks", Wellesley, MA: Wellesley-Cambridge Univ. Press, 1996.
- 33 M. L. Ahlstrom and W. J. Tompkins, "Automated high-speed analysis of Holter tapes with microcomputers", IEEE Trans. Biomed. Eng., vol. BME-30, pp 651-657, Oct. 1983.
- 34 M. Nygrads and L. Sornmo, "A QRS detection algorithm with low sensitivity to noise and morphology changes", Comput. Cardiol., pp 347-350, 1981.
- 35 A. Ligtenberg and M. Kunt, "A robust-digital QRS-detection algorithm for arrhythmia monitoring", Comput. Biomed. Res., vol. 16, pp. 273-286, 1983.
- 36 Kadambe, Murray and G Faye Boudreaux-Bartels "Wavelet Transform Based QRS Complex Detector", IEEE Transaction on Biomedical Engineering, Vol 46 No. 7, July 1999.
- 37 S. Kadambe and G. F. Boudreaux-Bartels, "Application of the wavelet transform for pitch detection of speech signals", IEEE Trans. Inform. Theory, vol. 38, no. 2, pp. 917-924, Mar. 1992.
- 38 F. Tuteur, "Wavelet transformations in signal detection", in Proc. IEEE Int. Conf. Acoust., Speech, Signal Processing, New York, 1988, pp. 1435-1438.
- 39 N. V. Thakor, J. G. Webster, and W. J. Tompkins, "Estimation of QRS complex power spectra for design of a QRS filter", IEEE Trans. Biomed. Eng., vol. BME-31, pp. 702-706, Nov. 1984.
- 40 Q. Z. Xie, Y. H. Hu, and W. J. Tompkins, "Neural-network based adaptive matched filtering of QRS detection", IEEE Trans. Biomed. Eng., vol. 39, pp. 317-329, 1992.
- 41 F. Gritzali, G. Frangakis, and G. Papakonstantinou, "Detection of the *P* and *T* waves in an ECG", Comput. Biomed. Res., vol. 22, pp. 83-91, 1989.
- 42 S. Mallat and W. L. Hwang, "Singularity detection and processing with wavelets", IEEE Trans. Inform. Theory, vol. 38, pp. 617-643, 1992.
- 43 Cuiwei Li, Chongxun Zheng, and Changfeng Tai "Detection of ECG Characteristic Points Using Wavelet Transforms", IEEE transactions on biomedical signal processing, Vol. 42, No. 1, January 1995.

## Chapter 10: Bibliography

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- 44 IEEE Transactions on neural networks vol 6, no. 6 November 1995. "Self-Organizing QRS wave Recognition in EGU Using Neural Networks", Yukionori Suzuki.
- 45 G. A. Carpenter and S. Grossberg, "ART2: self-organization of stable category recognition codes for analog input patterns", Appl. Optics, vol. 26, pp. 4915L4930, 1987
- 46 Nicos Maglaveras, Telemachos Stamkopoulus, Costas Pappas, Michael Gerassimo "An Adaptive Backpropagation Neural Network for Real – time Ischemia Epiodes Detection: Development and Performance Analysis using the European ST-T Database", IEEE Transaction on Biomedical Engineering vol. 45, no.7 july 1998.
- 47 J. A. Freman and D. M. Skapura. "Neural Networks: Algorithm, Applications and programming techniques", Reading, MA: Addision Wesley, 1991.