Part 3/5

Medical Instrumentation and Computational Systems in Medicine

Track 6:	Biomedical Application of Automatic Control	
6.1-1:	Constrained Parameter Identification for Automated Drug Infusion W.D. Timmons*, H.J. Chizeck** and P.G. Katona*, Depts. of Biomedical* and Systems** Engineering, Case Western Reserve University, Cleveland, OH	092
6.1-2:	Use of Slayr Neural Strategies for Closed Loop Control of Drug Infusion A.V Sebald, J Schlenzig, Department of Applied Mechanics and Engineering Sciences, University of California, San Diego, CA	0927
6.1-3:	Adaptive Control of Drug Delivery Based on Sparse Measurements: Simulation of Theophylline Therapy T.C. Jannett and S. Aragula, Departments of Electrical and Biomedical Engineering, University of Alabama at Birmingham, AL	0930
6.1-4:	Strategies for Adaptive Control in Pharmacokinetic Model-Driven Intravenous Drug Delivery with Zero or Sparse Feedback James R. Jacobs, Departments of Anesthesiology and Biomedical Engineering, Duke University Medical Center, Durham, NC	0932
6.1-5:	Sources of Error in Pharmacokinetic Model-Driven Intravenous Drug Delivery James R. Jacobs, Departments of Anesthesiology and Biomedical Engineering, Duke University Medical Center, Durham, NC	0933
6.2-1:	Adaptive Control of Inducing Hypotension with Optimum Drug Infusion Khosrow Behbehani, Russell J. Cross, and Kevin Kline, Biomedical Engineering, Univ. of Texas at Arlington and Anesthesiology, Univ. of Texas Southwestern Medical Center at Dallas	0934
6.2-2:	Nonlinear Fuzzy Control of Mean Arterial Pressure in Critically III Patients H. Ying, D.M. Tucher*, M. McEachern*, D. Eddlemann*, M. Perl, A.W.H Stanley*, L.C. Sheppard**, Dept. of Biomed. Eng., Univ. of AL at Birmingham, Birmingham, AL,*The Univ. of TX Med. Branch at Galveston, Galveston, TX	0936
6.2-3:	Fuzzy, Rule-Based Controller for Sodium-Nitroprusside Optimal Dosage Computation Ricardo Ruiz* and Daniel Borches**, *Polytecnical Univ. of Madrid, ETSII Elec. Engr. Div., **Autonoma Univ. of Madrid, Dept. of Cardiac Surgery, Madrid, Spain	0938
6.2-4:	Closed Loop Drug Delivery: An Industry Perspective Gregory I. Voss, Department of Cardiovascular Systems and Control IVAC Corporation, San Diego, CA	0940
6.3-1:	Clinical Experience with Automatically Controlled Closed-Circuit Anesthesia Delivery R.G. Ritchie, PhD, J.D. Pearson, E.A. Ernst, B.L. Pate, Dept. of Anesthesiology, School of Med., Univ. of AL at Birmingham, Birmingham, AL, Care System, Inc., Huntsville, AL	0941
6.3-2:	Construction and Evaluation of Scalar EEG Indexes of General Anesthesia W. D. Smith, R. C. Dutton*, N. T. Smith**, Biomedical Eng. Program, CA State Univ., Sacramento, CA, *Dept. of Anesthesia, Univ. of CA, San Diego VA Medical Ctr., San Diego, CA	0943
6.3-3:	Integrated Instrumentation for Closed-Loop Feedback Control of Muscle Relaxation: Initial Clinical Trials T. C. Jannett and R. J. DeFalque, Dept. of Elect. Engr., and Dept. of Anesthesiology, Univ. of Alabama, Birmingham, AL	0945
6.3-4:	PC-Based Muscle Relaxation Controller and Monitor HS. Bradlow* and J.R. O'Maahony**, *Dept. of Electrical and Computer Engr., The Univ. of Wollongong, Australia, **Medical Information Technologies SA, Halfway House, Transvaal, South Africa	0947
6.3-5:	Anesthesiologist's Adaptive Associate (ANAA) F. Ahmed*, I. Nevo**, A. Guez*, *Electrical Computer Engineering Dept., Drexel Univ., Philadelphia, PA, **Anesthesiology Dept., Albert Einstein Center, Philadelphia, PA	0949
6.3-6:	Automated Intravenous Regional Anesthesia for Upper and Lower Limbs James A. McEwen and Mark E. Miller, Biomedical Engineering Dept., Vancover General Hospital and Western Clinical Engineering Ltd., Vancover, British Columbia, Canada	0951
6.4-1:	Biochemical Systems Theory with Applications to Metabolic Control Michael A. Savageau, Departments of Microbiology and Immunology and of Chemical Engineering, The	0953

6.4-2:	Parameterization of a Physiologically-Based Pharmacokinetic (PBPK) Model Using Three Different Experiments	0955
	Tracey J. Woodruff, Frederic Y. Bois, Jennifer D. Parker, David Auslander, Steve Selvin, Robert Spear, School of Public Health and College of Engr., University of California, Berkeley, Berkeley, CA	
6.4-3:	Nonparametric Characterization of the Kinetics and Stochastics of Physiological	0957
	Circulatory Systems Davide Verotta, Lewis B. Sheiner, Schools of Medicine and Pharmacy, University of California San Francisco,	0907
	San Francisco, CA	
6.4-4:	A Compartmental Model of Lactate Kinetics in Humans: Role of Sites of Tracer Administration and Sampling	0959
	Antonio Zerman, Claudio Cobelli, Luigi Sacca*, Dept. of Electronics and Informatics, Univ. of Padova, Italy,	0505
	*Dept. of Internal Medicine, Federico II Univ. Second School of Medicine, Naples, Italy	
6.4-5:	Computer Aided Design in Modulation of Antibotic Release from Bone Cement: Blood	2007
	Concentration Estimation A. Segui, L. Bunetel, J. Guerin, M. Cormier, Fact. de Pharmacie, Rennes, France	0961
6.4-6:	Optimized Kinetics Modeling via Hooke and Jevves Method	0963
0.4-0.	C.E. Pereira*, Mirna Guedes*, P.S. Muniz**, H. Lopes*, *Dept. of Eng. Electric, RJ, Rio De Janiero, Brazil,	0000
	**INAMPS, Santo Cristo, Brazil	
6.5-1:	Estimation of Attention to a Moving Target During Eye Tracking Movement	0965
	Y. Ebisawa, H. Minamitani*, M. Takase**, Fac. of Eng., Schizuoka Univ., Japan, *Fac. of Science &	
	Technology, **School of Medicine, Keio University, Japan	
6.5-2:	An Experiment of the Automatic Inference of Formal Grammars for the Syntactic Recognition of Pathological Saccadic Eye Movements	0968
	Martti Juhola, Department of Computer Science, University of Turku, Turka, Finland	
6.5-3:	Characteristic Differences of Saccadic Suppression in Visually Triggered and Internally	
0.0 0.	Guided Saccades	0970
	Yoshifumi Takahashi, Yoshinobu Esisawa*, Masachika Ohmori, Tatsuya Inagaki and Haruyuki Minamitani,	
	Faculty of Science and Technology, Keio Univ., Japan, **Faculty of Engr., Shizuoka Univ., Japan	0972
6.5-4:	Adaptive Process of Visually Triggered Saccadic Eye Movement	0972
	Masachika Ohmori, Tatsuya Inagaki, Yoshifumi Takahashi, Yoshinobu Ebisawa*, Haruyuki Minamitani, Faculty of Science and Technology, Keio University, Japan, *Faculty of Engr., Shizuoka Univ., Japan	
6.6-1:	Nonlinear Static Model Simulation of the Fixation Disparity Curve	0975
0.0 -	G.K. Hung, Dept. of Biomed. Eng., Rutgers Univ., Piscataway, N.J	
6.6-2:	Stabilization of Gaze During Eccentric Fixation	0977
	M. Eizenman, P. Cheng, J.A. Sharpe, R.C. Frecker, Inst. of Biomed. Eng., Depts. of Ophthalomology, Neurology, & Elect. Eng., Univ. of Toronto, Toronto, Ontario, Canada	
6.6-3:	Models of Gaze Control in Man	0979
	D. Zambarbieri and R. Schmid, Dipartimento di Informatica e Sistemistica, Universita di Pavia, Pavia, Italy	0981
6.6-4:	Modeling Eye Movements as a Markov Process Selim S. Hacisalihzade and Lawrence W. Stark*, John S. Allen*, Swiss Federal Inst. of Technology (ETH),	0301
	Zurich, Switzerland, *Univ. of California, Berkeley, CA	
6.7-1:	Time Delays and the Complexity of Physiological Dynamics	0983
0.7 2.	J.G. Milton, M.C. Mackey*, Dept. of Neurology, Univ. of Chicago, *Dept. of Physiology, McGill University	
6.7-2:	Time Delays, Noise and Oscillations in Neural Feedback Systems	0985
	A. Longtin, J.G. Milton*, Theoretical Div., Los Alamos Nat'l Lab., *Dept. of Neurology, Univ. of Chicago, Chicago, IL	
6.7-3:	Oscillations in a Simple Model of Tubulogolmerular Feedback	0987
	H.E. Layton*, E.B. Pitman**, *Dept. of Mathematics, Duke University, **Dept. of Mathematics, State University of New York at Buffalo, Buffalo, NY	0989
6.7-4:	Analog Simulation of Delayed Dynamics: Bifurcations and Chaos	V905
	J. Losson, M.C. Mackey and C. Cortis, Department of Physics, Center for Non-Linear Dynamics, McGill University, Montreal, Quebec, Canada	12 010
6.7-5:	Analysis of Complex Dynamics During a Visumotor Task in Patients with Neurological Diseases	0992
	A. Beuter, C. Labrie, and L. Glass, Dept. of Physiology, McGill University, Montreal, Quebec, Canada	0994
6.7-6:	Chaotic Blood Flow Analysis in an Animal Model	099
	M.E. Cohen*, D.L. Hudson**, H. Moazamipour**, M.F. Anderson*, **, ***, *CA State Univ., Fresno, **Univ. of	

6.8-1:	Self-Management through Specialized Centres	0006
	A. M. Albisser, Dept. of Electrical Engineering, University of Toronto, Toronto, Canada	0996
6.8-2:	Strategies for Insulin Dosage Adjustment Using Model-Based Blood Change Product	0998
6.8-3:	Thomas's Hospital, Dept. of Medicine, London, UK, +Charles Univ., Czechoslovakia	
0.6-3;	Estimation of Non-Steady State Hepatic Glucose Production By Deconvolution with a Time-Varying Compartmental Model	
	Alfredo Ruggeri, Claudio Obelli, Andrea Caumo* and Geza Hetenyi**, Dept. of Elec. and Informatics, Univ. of	1000
	School of Med. Offawa Canada	
6.8-4:	insuin Action on Gluclose Kinetics: New Development from a Two-Compartment	
	Tracer Millimar Model	1002
	A. Caumo and C. Cobell, S. Raffaele Scientific Institute, Milan, Italy	1002
6.8-5:	Analysis of Feedback Relationship between Plasma Glucose and Insulin with Multivariate	
	ratoregressive modeling	1004
	T. Wada*, H. Makimura**, K. Kitada**, Akira Matsuoka**, Inagi City Hospital, Tokyo, Japan*, Huogo College of Med., Nishinomiya, Hyogo Prefecture, Japan**	
6.9-1:	Model-Based Reasoning for Adjusting Insulin Therapy	
	T. Deutsch*, *, and E.R. Carson**, *Computer Centre Semmelueis University Medical School Budget	1005
	centre for Measurement and Information in Medicine, Dept. of System Science, City Univ., London	
6.9-2:	Diamon/Diasim: Decision Support in the Insulin Theraphy of Diabetic Patients	1007
	Jutta Schneider, Institute fuer Medizinische Informatik and Systemforschung (MEDIS), Gesellschaft fuer Strahlen- und Umweltforschung mbH (GSF), Munich, W. Germany	1001
6.9-3:	A Framework for Integration of Knowledge Sources from Diverse Clinical Domains	1009
	R. Summers, G. Lenoudias, J.J. Chelsom and E.R. Carson, Research Centre for Measurement & Information in Medicine, Dept. Systems Science, City University, UK	1005
6.9-4:	A Causal Probabilistic Network Model of Carbohydrate Metabolism for Insulin Adjustment	1011
	Steen Andreassen*, Jonathan Benn**, Ewart Carson+, Roman Hovorka+, Uffe Kjarulff++, Kristian G. Olesen*, *Aalborg Univ., Denmark, **St. Thomas Hos. London, +City Univ., London, ++Judex Datasystemer A/S, Aalborg, Denmark	1011
6.9-5:	Assessment of Individual Pharmacokinetics and Pharmacodynamics of Insulin and Its	
	incrapeutic Consequences based on a Model of the Glycose-Insulin System	1012
	E. Salzsieder, G. Albrecht, U. Fischer, A. Rutscher, R.L. Stephen*, H. Stoewhas, Central Inst. of Diabetes "Gerhard Katsch" Karlsburg, W. Germany, *Instit. of Biomedical Engr., Univ. of Utah, Salt Lake City, UT	1012
6.10-1:	On Cancer Modeling and Treatment Planning	1015
	W. Duchting, R. Lehrig, G. Radermacher and W. Ulmer, Institut of Control Eng., Dept. of Electrical Eng., Univ. of Siegen, W. Germany	1010
6.10-2:	Closed-loop Control for Rescue by Loucovorin in High-dose Methotrexate Chemotherapy	1017
	Medical College, Tokorozawa, Japan	
6.10-3:	I are a second included by the laby	1019
6 10 4	David Z. D'Angenio, Dept. of Biomedical Engineering, University of Southern California, Los Angeles, CA	
6.10-4:	An Optimal Control Algorithm for Multidrug Cancer Chemotheraphy Design	1021
	F. Lubo Pereira*, C.E. Pedreira**, M.R. Pinho*, M.H. Fernandes+, J.B. Sousa*, *DEEC-FEUP, Portugal, **DEE, PUC-RJ, Rio de Janeiro, Brasil, +Farmacologia, E.S.M.D., Portugal	
Track 17:	Instrumentation	
17.1-1:	Microcomputer Data Acquisition and Signal Averaging System for Biomedical Applications	1000
	Paul A. Guse* and Joseph S. Fontaine**, *Dept. of Pharmaceutical Science, ND State University, Fargo, ND, *Dept. of Medicine, Duke University Medical Ctr., Durham, NC, **Rockwell International, IA	1023
17.1-2:	A Computer Based Control System for Cardiac Neural Stimulation Experiments	1025
	L.R. Mongeon, J. Cheng, M.N. Levy, Div. of Investigative Med., Mt. Sinai Med. Center, Dept. of Biomed. Eng., Case Western Res. Univ., Cleveland, OH	1025
17.1-3:	Impedance Bacteriometry: Medium and Interface Contributions During Bacterial Growth	1027
	Carmelo J. Felice, Maria I. Vercellone, Rossana E. Madrid, Max E. Valentinuzzi, Laboratorio de Bioingenieria, Facultad de Ciencias Exactas, Tecnologia, Universidad Nacional de Tucuman, Argentina	1027

17.1-4:	A Calibration System for Acoustic Otoemission Probes F. LeFrious, B. Aragon, Laboratoire d'Acoustique de Metrologie et d'Instrumentation, Universite Paul Sabatier,	1029
	rodiotise, France	
17.1-5:	in Immunoanalysis	1031
100001101110110	J.C. Andre*, M. Donner*, M. Mazelli*, N. Midoux+, E. Saatdjian+, and M.L. Viriot*, *GRAPP-URA 328 CNRS, Nancy Cedex, **U 284 INSERM, Nancy Cedex, France	
17.1-6:	grand by stem based on a 10 for resting octuar Moting	1034
	G. Magenes, G. Beltrami and D. Zambarbieri, Dipartimento di Informatica e Sistemistica, Universita di Pavia, Italy	
17.2-1:	The state of the s	1036
	W. H. Newmann*++, M. G. Curley++, S. C. Summit++, H. F. Bowman*,** G. DelHomme+, A. Dittmar+, *Harvard-MIT, MA,** Northeastern Univ., Boston, MA, ++Thermal Tech., MA, +CNRS, Lyon, France	1000
17.2-2:	Non-Invasive Determination of Myocardial Oxygenation Using Near Infra-Red Spectroscopy	1038
1700	Engineering and Medical Physics, University of Keele, Hartshill, Stoke on Trent, U.K.	
17.2-3:	and the state of t	
	Thermodilution Measurements from Intensive Care Patients Y. Qi, Q. Cui, S. Petrucelli, W. Welkowitz, A. Abalos*, Dept. of Biomed. Eng., Rutgers Univ., Piscataway, NJ *	1040
rasse e	outg. & Alesdi Depts., Mt. Sinai Hosp., New York, NY	
17.2-4:	and the impedance Using a Portable Microcomputer	1042
	D.M. Craig, C.M. Purut, J.P. McGoldrick, P.K. Smith, Dept. of Surgery, Duke Univ. Medical Center, Durham, NC	
17.2-5:	Reconstruction of Cardiac Displacements By Capacitance Transducer Method	1044
	C. Ramachandran, K. Smapathkumar, S. Swarnamani and Megha Singh, Biomedical Engineering Division, Indian Institute of Technology, Madras, India	1044
17.2-6:	The state of the s	1046
	P. Gizdulich, K.H. Wesseling*, Dept. of Clinical Physiopathology, Florence, Italy, *TNO Biomedical Instrumentation, Amsterdam, The Netherlands	20.00
17.3-1:	The state of the s	1048
	M.R. Akbarzadeh, W.J. Tompkins, J.G. Webster, Dept. of Electrical and Computer Engineering, University of WI-Madison, Madison, WI	
17.3-2:	ECG and Respiration Neonatal Monitor	1050
	F. Mora, A. Reinhard, M. Luzardo, A. Dias-Aidos, G. Montilla*, G. Villegas, G. Passariello, Grupo de Bioing, y Biofisica Apl., Univ. Simon Bolivar, Caracas, Venezuela	
17.3-3:	Multiple Location Body Temperature Measurement of Infants	1052
	Richard Dove*, Jeff Brown**, Brent Price*, Sai Fong**, Rodney Ford**, *Dept. of Med. Physics and Bioeng., Christchurch Hosp., **Dept. of Paediatrics, Christchurch Hosp., Christchurch, New Zealand	
17.3-4:	A Simple Physiological Monitor System for Neonatal Applications	1054
	Victor M. Carbajal-Castaneda, Daniel Villazon-Bustillos, Pedro Leal Rodriguez*, Departmento de Ingenieria Biomedica, Hospital Clinica del Parque, S. A. de C.V., *Chihuahua, Mexico	
17.3-5:	Real-Time Fetal ECG Extraction	1056
	Dirk Callaerts, Willy Sansen, Joos Vandewalle, Kath. Univ. Leuven, Dept. of Elec. Eng., ESAT-laboratory, Heverlee, Belgium	
17.4-1:	A Polyimide Packaging Process for a Semiconductor Diaphragm Tactile Sensor	1058
	D.J. Beebe, D.D. Denton, J.G. Webster, R.G. Radwin*, Dept. of Electrical and Computer Engineering, *Dept. of Industrial Engineering, Univ. of WI-Madison, Madison, WI	
17.4-2:	and the detection of the short	1060
102-102-170-170-170-17	K.A. Kaczmarek, J.G. Webster, R.G. Radwin*, Dept. of Elect.& Comp. Engineering, *Dept. of Industrial Engineering University of Wisconsin, Madison, WI	
17.4-3:	Word Learning Rates for a Tactile Hearing Aid Based on the Properties of Amplitude- and	
	Time-Quantized Speech E.M. O'Brien, Bioeng. Program, Texas A&M Univ., College Station, TX	1062
17.4-4:	Induction Power Supply Designs for Implanted Biomedical Integrated Circuits	1064
	J. H. Chen and W. N. Carr, New Jersey Institute of Technology, Newark, NJ	1064

17.5-1:	Design of High Quality Miniature Amplifiers in Thick Film Technology A.C. Metting van Rijn, A. Peper, C.A. Grimbergen, Med. Physics & Informatics Dept., Univ. of Amsterdam, Academic Med. Center, Amsterdam, The Netherlands	1066
17.5-2:	R-Wave Detection Using a Single-Chip Microcomputer T. A. Wrublewski, Y. Sun*, and A. Pittel, Boston Scientific Corp., Boston, MA, Dept. of Electrical Engineering, Univ. of Rhode Island, Kingston, RI	1068
17.5-3:	An Integrated Data Compression Algorithm for Electrocardiograms A. Mingh, Q. Zhu, Electrical Eng. Dept., San Jose State Univ., San Jose, CA	1070
17.5-4:	More Than 24 Hours Digital Holter ECG System	1072
	S. Nitta, Y. Katahira, T. Yambe, T. Sonobe, H. Hayashi, S. Naganuma, H. Akiho, M. Tanaka, O. Shirakawa*, Y. Okamoto*, T. Okazaki** and M. Kusakabe**, Tohuku Univ., *Fukuda Senshi Co., **Sony Co., Ltd., Japan	17.57.5
17.5-5:	EMG Activity in Normal and Ischemic Bowel: An Approach to the Assessment of	
	Long-Term Viability G. Cazi*, J.L. Semmlow*,**, E. Hawley*, R. Brolin**, *Dept. of Biomed. Eng., Rutgers University, **Dept. of Surgery, UMDNJ -RWMS, Piscataway, NJ	1073
17.5-6:	Bioelectric Signals Amplification Exploiting the Switching Behavior of Electrode Impedance F.J. Saiz, J.M. Ferrero Loma-Osorio, J.M. Ferrero Corral, E. Guijarro, Laboratorio Integrado de Bioingenieria, Departamento de Ingenieria Electronica, Universidad Politecnica de Valencia, Spain	1076
17.6-1:	Thin Film Technology for High and Low Tc SQUIDs	1079
2110 21	W. J. Gallagher, IBM Research Division, Yorktown Heights, NY	
17.6-2:	Designing Multichannel Neuromagnetometers	1080
	C. D. Tesche, IBM Research Division, Yorktown Heights, NY	
17.6-3:	High-Resolution Squids for Magnetic Imaging	1082
	J. P. Wikswo, Jr., Dept. of Physics and Astronomy, Vanderbilt University, Nashville, TN	
17.6-4:	Superconductor Imaging Surface Magnetometry: Principles and Applications W. C. Overton Jr. and D. B. van Hulsteyn, Neuromagnetism Laboratory, Los Alamos National Laboratory, Los Alamos, NM	1085
17.6-5:	300 100 100 100 100 100 100 100 100 100	1087
17.0-0.	W. J. Dallas, Dept. of Radiology, University of Arizona, Tucson, AZ	1001
17 7-1	Human Brain Magnetite and Squid Magnetometry	1089
11.11-1.	J. K. Kirschvink, A. K. Kirchvink, and B. Woodford, California Inst. of Technology, Pasadena, CA	1000
17 7-9-	Neuromagnetic Measurements with a 24 Channel SQUID Magnetometer	1091
11.1-2.	R.J. Ilmoniemi, Low Temperature Laboratory, Helsinki University of Technology, Finland	1001
17.7-3:	Calculation of the Magnetic Field of a Muscle Fiber as Measured by a Squid Magnetometer R.S. Wijesinghe, J.P. Wikswo, Jr., Living State Physics Group, Dept.of Physics & Astronomy, Vanderbuilt Univ., Nashville, Tennessee	1093
17.7-4:	Measurements of Magnetic Fields of K-Complexes in Sleep MEG Activities and the Source Estimation	1095
AV PER SERVICE	K. Iramina and S. Ueno, Department of Electronics, Kyushu University, Fukuoka, Japan	
	Possiblity of Noninvasive Biocurrent Measurement of Ultrasonic Tissue Resistivity Modulation B.C. Towe, H. Simms, Bioengineering Program, Arizona State Univ., Tempe, Arizona	1096
P.17-2:	Computer-Guided Laser for Neurosurgery	1097
	Yrjo Louhisalmi and John Koivukangas*, Departments of Mechanical Engineering and Neurosurgery*, University of Oulu, Finland	****
	A Programmable Animal Ventilator D.A. Silage, C.F. Ward*, Dept. of Elect. Eng., Temple Univ., *CWE, Inc., Ardmore, PA	1199
P.17-4:	Novel Constant Current Iontophoretic Delivery of Metoprolol in Spontaneously Hypertensive Rabbits C. Carley-Zakzewski, J.KJ. Li, Cardiovascular Research lab., Dept. of Biomed. Eng., Rutgers Univ.,	1101
D 17 5	Piscataway, NJ	1103
F.17-0;	Low Noise Design of Patch Clamp Amplifier Hua-Guang Kang and Zhuan Zhou, Department of Automatic Control Engineering, Huazhong University of Science and Technology, Wuhan, Hubei, P.R. China	1103
P.17-6:	- 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1105

Tra	ck 18:	Lasers and Electro-Optics	
	18.1-1:	Thermodynamic Principles of Laser-Tissue Interaction	1108
		J. A. Pearce, University of Texas at Austin, Austin, TX	
	18.1-2:	Dynamics of Isotherm Propagation in Laser Irradiation of Tissue	1111
		S. Rastergar and B. Anvari, Texas A&M University , TX	
	18.1-3:	Optical Changes in Myocardial Tissue due to CW ND-YAG Irradiation	1113
		Robert Splinter, Lazlo Littmann, Marie-Claire Marroum, Robert H. Svenson, Jan R. Tuntelder, Chi Hui Chuang, George P. Tatsis, Michelle Thompson, Laser & Applied Tech. Lab., Carolinas Med Ctr.	
	18.1-4:	Assessment of Layered Properties in Biological Tissue from Dual-Wavelength Optical	
		Reflectance Measurements	1115
		W. Cui, L.E. Ostrander, Biomedical Eng. Dept., Rensselear Polytechnic Inst., Troy, NY	
	18.1-5:	Optical Path Length of 754nm and 816nm Light Emitted Into the Head of Infants	1117
		D.A. Benaron*, S. Gwiazdowski, C.D. Kurth, J. Steven, M. Delivoria-Papadopoulos, B. Chance, Depts. of Physiology, Anesthesiology, Pediatrics & Biochem/Biophysics, Univ. of PA Schl of Med & Children's Hosp. Philadelphia, PA	
	18.2-1:	Coherent Versus Non-Coherent Detection of Time-of-Flight Transillumination Images	1120
		J.A. Hayes, B.J. Sullivan, Dept. of Elect. Eng. and Comp. Science, Northwestern Univ., Evanston, IL	
	18.2-2:	Scanning Methods for Time-of-Flight Optical Imaging	1122
		R. A. Kruger, J. C. Hebden*, Innovative Imaging Sciences, Inc., Salt Lake City, Utah, *Medical Imaging Res. Lab., Univ. of Utah School of Medicine, Salt Lake City, UT	
	18.2-3:	Time-of-Flight Imaging of a Simple Breast Phantom	1124
		Jeremy C. Hebden and Robert A. Kruger*, Medical Imaging Research Lab., Univ. of Utah School of Medicine, Salt Lake City, Utah, *Innovative Imaging Sciences, Inc., Salt Lake City, UT	
	18.2-4:	Optimization of Acquisition Parameters in Fast Magnetic Resonance Imaging	1126
		I. Dufour, J. Bittoun, I. Idy-Perreti, O. Jolivet, R. Di Paola CIERM, Hosp. de Bicetre, Institut Gustave Roussy, France	
	18.2-5:	Two-Dimensional Microvascular Blood Flow Mapping	1127
		G.E. Nilsson, A. Jakobsson and K. Wardell, Department of Biomedical Engineering, Linkoping University, Linkoping, Sweden	
	18.3-1:	Intrinsic Fiber Optic Detectors and Planar Waveguides	1129
		Raymond Dessy, William Bender, Lee Kang, James Petersen and Eric Richmond, Virginia Polytechnic Institute and State University, Chemistry Department, Blacksburg, VA	
	18.3-2:	Fiber-Optic Connectors for Laser-Surgical Applications	1131
		M. Y. Rondeau, VALDOR Fiber Optics, San Jose, CA	
	18.3-3:	Fiber-Optic Breakage Sensor System for Laser-Surgical Applications	1133
		Michael Aita, Robert Kotmel, Frank Ingle, Advanced Cardiovascular Systems, Inc., Santa Clara, CA	
	18.3-4:	9.	1135
		P.M. Dubill, E.D. Sugarman, L.R. Strzelecki, US Army Biomedical and Development Laboratory, Fort Detrick, Frederick, MD	
	18.4-1:	Photodynamic Therapy for Treatment of Malignant Tumors T. J. Dougherty, Div. of Rad. Biology, Roswell Park Cancer Inst., Buffalo, NY	1137
	18.4-2:	그는 그리는 그래에 그렇게 그렇게 하는 그리는 그들이 되었다. 그리는	1138
		J. G. Levy Quadra Logic Technologies, Inc., Vancouver, British Columbia, Canada	
	18.4-3:	A New Technique in Whole Bladder Photodynamic Therapy	1140
		U.O. Nseo, S.L. Lundahl, D.C. Merrill, PhotoRadiation Systems, Martinez, CA	
	18.4-4:	- 프립트	1142
		S. Lam, J. Hung, C. MacAulay, B. Jaggi, B. Palcic, British Columbia Cancer Agency, University of British Columbia, Canada	
	18.4-5:	Endoscopic Laser Therapies for Obstructing Esophageal Tumors	1144
		S. K. Heier, K. Rothman, L. M. Heier, W. S. Rosenthal, New York Medical College, Valhalla, NY	
	18.5-1:	The Clinical Utility and Status of Laser Biostimulation	1146
		Jeffrey R. Basford, Dept. of Physical Medicine and Rehabilitation, Mayo Clinic, Rochester, MN	

	Coronary Angioplasty System Using CO Lasers Tsunenori Arai, Akira Suda, Makota Kikuchi, Kyoichi Mizuno*, Akira Miyamoto*, Masami Sakurada*, Yasuyuki Okamoto*, Akira Kurita*, Haruo Nakamura*, Atsushi Utsumi***, Yoshiro Akai****, Kiyoshi Takeuchi****, Dept. of Med. Eng., Nat'l. Defense Medical College, **Dept. of the 1st Internal Medicine, ibid., ****Res. & Devel. Div., Mitsubishi Cable, Indus. Ltd., ****Electron Tube Div., Hamamatsu Photonics, *****Res. Div., Fukuda Denshi Co. Ltd.	1148
18.5-3:	Near-Infrared Spectrophotometric Assessment of Brain Blood Oxygenation J.C. Jensen, D. Amory, J. KJ. Li, Bjomed. Instrumentation Lab., Dept. of Bjomed. Eng., Dept. of Anesthesiology, Robert Wood Johnson Medical School, N.J.	1150
18.5-4:	Laser Induced Fluorescence of Human Colon Tissue R. P. Rava, R. Richards-Kortum, R. E. Petras, M. Fitzmaurice, M.S. Feld, MIT, Cambridge, MA, Cleveland Clinic Foundation, Cleveland, OH	1152
Track 12:	Computers in Medicine	
12.1-1:	Function of Arterial Windkessel for Coronory Perfusion	1153
	N. Westerhof, and G. Elzinga Lab. for Physiology, Free Univ. of Amsterdam, Amsterdam, The Netherlands	
12.1-2:	Implications to Therapy M. Karamanoglu, A. Avolio, M. O'Rourke, Department of Medicine, St. Vincent's Hospital and Center for	1154
12/2/12/12/12	Biomedical Engineering, University of N.S.W., Sydney, Australia	1156
12.1-3:	Aortic Impedance in Human Heart Failure: Importance of Low Frequency Harmonics W.K. Laskey, W.G. Kussmaul, A. Noordergraaf, Cardiac Catherization Lab., Hospital of the Univ. of PA, & Cardio. Studies Unit, Dept. of Bioeng., Univ. of PA, Phildelphia, PA	75554030
12.1-4:		1158
	Kenneth B. Campbell, Sanjeev G. Shroff, Robert D. Kirkpatrick, Deborah L. Bell, Hesameddin Taheri, Dept. of Veterinary & Comparative Anatomy, Pharmacology & Physiology, Washington State Univ., WA	
12.1-5:		1160
	R. Burattini*, G.G. Knowlen**, and K.B. Campbell**, *Dept. of Elec. & Automatica, Univ. of Ancona, Italy, **College of Veterinary Medicine, Washington State Univ., Pullman, WA	
12.2-1:	Bistable Stationary Behaviors in a Model of Cardiac Nonpacemaker Cell	1162
	Mayer Laandau, Paco Lorente, Centre National de la Recherche Scientifique and Institut National de la Sante et de la Recherche Medicale U 195, Faculte de Medecine Clermont-Ferrand, France	20000000
12.2-2:	A Computer Model of the Dynamic Conduction Properties of the Atrioventricular (AV) Node D. Papadatos, M. Talajic*, C. Villemaire*, S. Nattel*, L. Glass Dept. of Physiology, McGill Univ., Montreal, Quebec, Canada, *Montreal Heart Inst., Montreal, Quebec, Canada	1164
12.2-3:	High Resolution Electrocardiography by Spectral Analysis	1167
	M. Akay, W. Craelius, W. Welkowitz, Dept. of Biomedical Eng., Rutgers Univ., Piscataway, NJ	
12.2-4:	Influence of Anisotropic Conduction on the Induction of Reentry. Comparison Between Experimental and Simulated Data Pierre Auger*, Rene Cardinal**, Alain Bardou+, *Faculte de Pharmacie, Dijon, France, **Hopital du Sacre-	1169
	Coeur, Montreal, Canada, +INSERM U256, Hopital Broussais, Paris, France	
12.2-5:	Modeling Excitability Patterns in Sheep Purkinje Fibers	1171
	Paco Lorente, Institut National de la Sante et de la Recherche Medicale, INSERM U 195, Faculte de Medecine, Clermont-Ferrand, France	
12.2-6:	Location of Carotid Stenosis and Ocular Blood Pressure	1173
	W. Kinser and Y. Yan, Dept. of Electrical and Computer Engr., Univ. of Manitoba, Winnipeg, Manitoba, Canada	1072122
12.3-1:	A Distributed Three-Dimensional Brain Visualization System	1175
	W.K. Shieg, M.W. Torello, D.L. Stredney, Dept. of Psychiatry & Adv. Computing Cntr for the Arts and Design, Ohio State Univ., Columbus, Ohio	
12.3-2:	Three Dimensional Computer Modelling in the Analysis of Aortic Valve Geometry	1178
	L. Vesely, W. Eickmeier, G. Campbell, John P. Robarts Res. Inst., Dept. of Chem. and Biochem. Eng. Univ. of Western Ontario, London, Ontario, Canada	
12.3-3:	3-D Display of Magnetic Resonance Images	1180
	P.L Lee, H.H. Kwong-Fu, H.J. Frieden, R.H. Selzer, Jet Propulsion Lab., CA Inst. of Tech., Pasadena, CA	0.50
12.3-4:	3D Computer Generation of Occlusal Surface	1182
	A. Dastane, T.K. Vaidyanathan, S. Laxminarayan, Univ. of Med. and Dentistry of NJ, Newark, NJ	

12.3-5:	Image Reformatting and Display for Computer-Assisted Stereotaxic Neurosurgery	1184
12 3.6	Udita Taneja and Cedric F. Walker, Dept. of Biomedical Engineering, Tulane University, New Orleans, LA Fast 3D Reconstruction & Display of Human Heart From Anatomical Sections	1100
12.3-0.	Ming Ding*, Tian ge Zhuang*, Huanchen Zuo**, *Div. of Biomedical Engr., Shanghai Jiao Tong Univ., Shanghai, P.R. China, **Division of Anatomy, Shanghai Medical University, Shanghai, China	1186
12.4-1:	A Simulation Model of the Dynamics of HIV/AIDS	1188
	Abdolazim Houshyar, Dept. of Industrial Engineering, Western Michigan University, Kalamazoo, MI	2200
12.4-2:	Computer Simulation of Hippocampal Neurons	1190
	Jasthi D. Prasad, Swamy Laxminarayan, Joseph McArdle, Peter Engler, New Jersey Institute of Technology & University of Medicine and Dentistry New Jersey, Newark, NJ	
12.4-3:	Comparative Computer Simulations of Shunt Performance in Hydrocephalus J. Brophy, E. Ahearn*, K. Randall**, G. Cipolletti***, R. Johnson, UNC-CH, Chapel Hill, NC, * Duke Univ. ,Durham, NC, ** AT&T Bell Labs West Long Branch, NJ, *** Baxter Health Care Co.,Chicago, IL	1192
12.4-4:	Computer Model of a Normal Pressure Pulse Contour in Ascending Aorta By Using a	
	Circuit Analysis Program	1194
	Amit Chatterjea and Dennis L. Harris, Department of Engineering, Indiana University, Purdue University, Fort Wayne, IN	
12.4-5:	Dynamics of AIDS Manifestation: A Mathematical Prediction	1196
	A. H. Nagpal, S. Lazminarayan*, R. Sodhi*, T. Roche, S. Sofer, New Jersey Institute of Technology, *University of Medicine and Dentistry of New Jersey, Newark, NJ	
12.4-6:	Use of an Event Recognition Method for Determining the Illnesses of the Physiological Systems	1198
	Z. Benyo, I. Benyo*, S. Benedek, B. Palancz, Department of Process Control Technical University Budapest, Budapest, *Jahn Ferenc Hospital, Department of Surgery, Budapest, Hungary	
12.5-1:		1200
	Luo Shuquan*, Z. Guohong**, W.J. Tompkins***, *Physics Dept., **Dept. of Elect. Eng., Zheng Zhou Univ., Zheng Zhou Henan, P.R.China ***Dept. of Elect.&Comp.Eng., Univ.of WI, Madison, WI	
12.5-2:	A Real-Time Electronystagmus Analysis System	1202
	Zhou Guohong, Luo Shuqian , Zhen Zhou University, Zheng Zhou, Henan, P.R. China	
12.5-3:		1204
	B.G. Celler, K. Lim, K. Smith*, Systems Physiology Lab., Schl. of Elect. Eng., Univ. of NSW, Australia S.C.A. Science and Comp. Appl. Pty. Ltd., Kensington, Sydney, Australia	
12.5-4:	A Portable System for Continuous on Line Assessment of Hemodynamics & Perfusion	1205
	D.K. Wilder, I.L. Cohen, Z. Bilen, R.J. Perkins, Depts. of Clinical Eng. & Surg., Albany Med. Center, Albany, NY	
12.5-5:	Loginat: Communication Station in Perinatalogy: Necessity of Cognitive Evaluation	1207
	M.C. Beuscart-Zephir, C. Duveaux*, T. Arbault*, P. Lequien**, Labacolil, Univ. de Lille III, France, *Dim-Dept. d'Info. Med., **Service do Neonatalogie, Hopital Calmette, Lille, France	
12.6-1:	Multi-Lan Patients Care System "Eye Microsurgery"	1209
	A.N. Bessarabov, P.A. Semyonov, A.L. Moskvitchev, A.A. Akmalov and L.N. Mitrophanov, "Eye Microsurgery" Research & Technology Center, Computer Engineering Div., Moscow, USSR	
12.6-2:	- 1987年 - 19	1210
	Lechoslaw K. Blach, Bozena Jaworska-Blach*, Jozef B.Lewoc**, Wrocław Technical University, *Hospital 40- lecia, Wrocław, **Elwro, Wrocław, Poland	
12.6-3:	Integrated Selective Heart Disease Screening	1212
	Malcolm Clarke, Rusell W. Jones, Mohamed E.B. Abdelrazik, Charles Rossiter*, Brunel University, Uxbridge, UK, *London School of Hygiene and Tropical Medicine, London, UK	
12.6-4:	Agenet—A Medical Radio Frequency Network for the Aged J. W. Swanberg, Eng. in Medicine and Biology, Los Angeles Chapter, Angeles, CA	1214
12.6-5:	Health Care Cost Containment in Canada: A Charter Perspective	1215
	Vihar Joshi, Dinkar Mukhedkar*, Swamy Laxminarayan**, Germano Lambert Torres*,***, McCann & Sheppard, Pembrooke, Canada; *Ecole Polytechnique, Montreal, Canada, **Univ. of Med. & Den., NJ Inst. of Tech., NJ; ***Escola Federal de Eng. de Itajuba, Brazil	
12 7-1-	Protyping A Workstation-Based ICU Charting System	1217
79.1-1:	S.B. Higgins, K. Jiang, B.B. Swindell, G.R. Bernard, Dept of Medicine, Vanderbilt Univ., Nashville, TN	1011
12.7-2:	Real-Time Networking of Integrated Patient Care Workstations	1219
	Omar Prakash, M. Govindarajan, S. Meiyappan, K. Sayee Sundar, Dept. of Thorax Anaesthesia, Thorax	
	Centre Frasmus Univ. Rotterdam The Netherlands	

	12.7-3:	Microcomputer Aided Analysis of Respiratory Muscle Activity in Premature Newborns Nelson-R. Claure, Wunnava V. Subbarao, and Shahnaz Duara, Florida International University, Elect. Engr., Univ. of Miami, School of Medicine, Miami, FL	1220
	12.7-4:	A Personal Low Cost EEG Analyser Using Fuzzy Techniques G. Lambert Torres*,**, F.G. Mandolesi*, S. Laxminarayan***,+, D. Mukhedkar*, *Ecole Polytech. de Montreal, Montreal, Can.; **Escola Federal, Brazil; ***Univ. of Med.& Dent., NJ, +New Jersey Inst. of Tech., NJ	1222
		On-Line Monitoring of Fetal ECG H. Alpar, S. Beksac*, H. Koymen, Electrical and Electronics Eng. Dept., Middle East Technical University, *Medical School, Hacettepe University, Ankara, Turkey	1224
		The Use of the Diacrono as an Aid in Ambulatory Decision Making of Diabetic Patients E. Gomez, F. del Pozo, M. T. Arredono, J. J. Bonastre and E. Hernando, Dept. de Technologia Electronica y Bioingeneria, Univ. Politechnica de Madrid, Spain	1226
	12.8-1:	Analysis and Design of Cementless Hip Joints Using CAD/CAM G.R. Harvey, The Queen's University, Belfast, U.K.; R.A.H. Harvey, Cuckfield Hospital, West Sussex, U.K.; D.R.H. Harvey, Medenco Ltd., London, U.K.	1228
		Speech Coding Based on Vector Quantization for a Tactile Vocoder Hearing Device S. Pourmehdi, J. Mouine, M. Sawan, J. LaJoie, and F. Duval Electrical Engineering Department, Universite de Sherbrooke, Sherbrooke, Quebec, Canada	1230
		The Advantages of a Computer in the Development of an Implanatable Device C.E. Harrigal, Cook Pacemaker Corp., Leechburg, PA	1232
		Computer Aided Analysis for the Diagnosis of Speech Disorders C Nataraj*, Narasimha Kaulgud*, A. Prakashan*, M. Chetan**, *Faculty, S.J. College of Engineering, Mysore, India, **Presently Graduate Student at University of Lowell, Lowell, MA	1234
	12.8-5:	Advancement in Computer Monitor that can Accommodate the Visually Impaired D. O'Neill, C.W. Moon, Northeastern Univ., Dept. of Elect. and Comp. Eng., Boston, MA	1235
	12.9-1:	Computer Graphics Modeling of the Musculoskeletal System of the Human Arm Sam M. Wood III, Ronald E. Barr, Lawrence D. Abraham, and Roger V. Gonzalez, Biomedical Engineering Program, University of Texas at Austin, Austin, TX	1237
		Synthesis of an Arbitrary Cross Sectional View from 2-D CT-Scan Images Nagarajan Prabhakaran, Ling Wing, School of Computer Science, Florida International University, University Park, Miami, FL	1239
		Outline of a Graphical Methodology for Medical Data Evaluation	1241
		P.O. Levy, M. Voutay, Ph. Rusch, M. Loboguerrerro, T. Hermann, Faculte de Medecine, Laboratoire de Biophysique et Informatique Medicale, Universite de Saint-Etienne, France	
	12.9-4:	An Imaging System for Melanoma Evaluation A.B. Soni, E. Micheli-Tzanakou, and D.F. Devereux, Dept. of Biomedical Engr, Rutgers Univ., and Dept. of Surgery, Section of Surgical Oncology, Robert Wood Johnson Medical School, NJ	1243
	12.9-5:	Visualization of Processes in the Brain Cortex: A New Method Alexander M. Gorbach, Evgenii N. Tsicalov, Institute of Higher Nervous Activity & Neurophysiology, Academy of Sciences, Moscow, USSR	1245
	12.9-6:	Application of Computer Graphics to the Visualization of the Local Density of a Point Process I. Krekule*, M. Martone, S.J. Young, P.M Groves, Dept. of Psychiatry UCSD, San Diego, CA, *Physiol. Inst./ Acad. of Sciences, Prague, Czechoslovakia	1247
	12.10-1:	Computer Aided Medical Education	1248
		D. A. Gerhardt and D. J. Gerhardt, Dept. of Electrical Eng., University of Pennsylvania, Philadelphia, PA	
-	12.10-2:	Evaluation of Clinical Competence by A.I. Methods G. Molino*, V. R. di Meana**, L. Console**, P. Torasso**, *Dipartimento di Fisiopatologia Clinica, Univ. di Torino, Torino, Italy **Dipartimento di Informica, Univ. di Torino, Torino, Italy	1250
	12.10-3:	VGA Graphic Adaptation in Radiography Education	1252
		R.J. Chamberlain, Dept. of Radiation & Imaging Sciences, Univ. of Med. & Dentistry of New Jersey, Newark, NJ	
	12.10-4:	Developments in Biomedical Teaching Systems: A Multidisciplinary Model Syed S. Haque*, Biomedical Informatics Program, Dept. of Interdisciplinary Studies, UMDNJ-School of Health Related Professions, Newark, NJ	1254
	12.10-5:	Eigenvector Functions in Matrix Cognition During Medical Diagnosis	1256
		John H. Bronston Disvoicione Educational Series Atherton CA	

	12.10-6:	Modeling and Simulation in Biomedicine on a Personal Computer	1258
		J.E.C.M. Aarts, Dietmar P.F. Moller*, R.P. van Wijk van Brievingh**, Horgeschool Midden Nederland, Dept. of Med. Informatics, The Netherlands, *Dragerwerk, Prod.Group Anaesthesia, West-Germany, **Delft Univ. of Tech., Faculty of Elec. Eng., Delft, The Netherlands	
	P.12-1:	Estimation of Lesion Probabilities Using a Neurological Test Database Yusaf Parlar, Rose A. Dios*, Andrew U. Meyer, William K. Weissman**, Dept. of Electrical and Computer Eng., *Dept. of Mathematics, New Jersey Inst. of Technology, **Theorex Corp., NJ	1260
	P.12-2:	An Automated Data Conversion and Entry System for the Medical Optical Card	1262
		M. Nishibori, S. Shiina, Dept. of Laboratory Medicine, Medical School, Tokyo Medical and Dental University, Toyko, Japan	
	P.12-3:	A Computerized Anemia Study of Large Institutionalized Populations M.T. Ortiz, R. Jaslow*, M. Rothman*, R. Rudelli, New York Inst. for Basic Research in Developmental Disabilities, *Letchworth Developmental Center (NYS - OMRDD), NY	1264
	P.12-4:	ASCII Encoding of Digitized EEG Waveforms - Data File Size Considerations E.C. Jacobs, P. Chen, T.F. Collura, R.C. Burgess, Section of Epilepsy & Clinical Neurophysiology, Cleveland Clinic Foundation, Cleveland, Ohio	1267
	P.12-5:	A Recursive Computer Program to Compute the Daily On-Call Assignments for a Medical Department	1229
	D 10 C	D.T. Seitman, Dept. of Anesthesiology, Hahnemann Univ., Philadelphia, PA	
	P.12-6:	Using Cluster Analysis to Define a Coherent Diagnostic Strategy A. Duhamel*, R. Beuscart, D. Dewally, H. Wampach, *CERIM, Fac. de Med., Lille, France	1271
	P.12-7:	Statistical Decision in Medical Field: Two Examples	1273
		A. Blinowska*, G. Chatellier**, J. Verroust***, J. Bernier***, *INSERM, Broussais, Paris, **Hop. Pitie Salpetriere, Paris, ***Hop. H. Mondor, Paris, ***Institut de Statistiques-Universities de Paris, France	1270
	P.12-8:	Comparison of Display Characteristics Between LCD and CRT	1275
		M. Miyao, S. Ishihara, H. Ishigaki*, K. Ito*, H. Iguchi*, and T. Iritani**, Nagoya Univ., Nagoya, Japan, *Aichi Inst. of Tech., Tokyo, **Tokyo Central Res. & Dev., Nagoya, ***Tokyo Motor Corp., Tokyo, Japan	
	P.12-9:	Application of a Finite State Automation to Computerized Coronary Anatomy Description James B. Wallis, Division of Cardiology, Department of Medicine, New York Hospital-Cornell Medical Center, New York, NY	1277
	P.12-10:	Data Management Approach for Biomedical Instruments	1279
		Jiguang Ge*, Chunfang Mei, *Dept. of Biological Science and Technology, Zhejiang University, Hangzhou, Zhejiang, P.R. China	
	P.12-11:	Parallel CISC Architecture in Medical Research	1281
		F. Kirchner, L. Beck, F. Baisch, Division of Space Medicine, Institute for Aerospace Medicine, DLR, Cologne, FRG	
	P.12-12:	Spatial Contrast Sensitivity Test as a Resolving Power Indicator on The Glaucomatous Subjects Yin Chang and Yao-An Fu*, Institute of Biomedical Engineering, National Yang-Ming Medical College, *Department of Ophthalmology, Chang-Gung Memorial Hospital, Taipei, Taiwan, Republic of China	1283
Tra	ck 15:	Expert Systems in Medicine	
-	15.1-1:	Knowledge Engineering Issues in Biomedicine	1285
		R.P. Gilibert, E. Hugonnard, A. Ovalle, C. Garbay, Equipe de Reconnaissance des Formes et de Microscopie Quantitiative Lab., Universite Joseph Fourier, Grenoble, France	
	15.1-2:	Model for Survival of Esophageal Adenocarcinoma: Role for Expert Systems Lawrence L. Hause, Evelyn Kuhn*, Lawrence J. Clowry, and Robert E. Condon+, Departments of Pathology, Biostatistics*, and Surgery+, Medical College of Wisconsin, WI	1287
-	15.1-3:	Knowledge-Based Color and Texture Analysis of Skin Image	1289
		Atam P. Dhawan and Mehul Parikh, Department of Electrical & Computer Engineering, University of Cincinnati, Cincinnati, OH	
	15.1-4:	Cytopath: An Expert System for the Classification and Diagnosis of Squamous Lesions	
		in the Pap Smears of Pre-Menopausal Women	1291
	15 1.5.	W. Mitlehner, E. Cronin, J. Bronzino, R. Veranes, Dept. of Engr., Hartford Graduate Center, Hartford, CT A Clinical Flow Cytometry Data Analysis Assistant	1293
	10.1.0.	G.C. Salzman*, C.C. Stewart**, R.E. Duque***, R.C. Braylaan****, *Los Alamos Nat. Lab., Los Alamos, **Roswell Park Cancer Ctr., Buffalo, NY, ***Norwood Clinic, Birmingham, AL	1250
		이 마음이 있는 살아보고 사용하다 나는 이 등에 가는 아내가 하다 아내가 하는 사용이 되었다면 하는데 그렇게 나는 아내가 되었다면 하는데 이렇게 되었다면 하는데	

	15.2-1:	Image Understanding, Visualization, and Registration of Magnetic Resonance (MR) and Positron Emission Tomography (PET) Images	1295
		Nahum D. Gershon, John D. Cappelletti, Stuart C. Hinds, Marcus E. Glenn, Civil Systems Division, MITRE Corporation, McLean, VA	
	15.2-2:	3-D Correlative Imaging and Segmentation of Cerebral Anatomy, Function and Vasculature A. Evans, T. Peters, L. Collins, C. Henri, S. Marrett, B. Pike, W. Dai, Neuro-Imaging Laboratory, McConnell Brain Imaging Center, Montreal Neurological Institute, Montreal, Canada	1297
	15.2-3:	The Spectral Analysis of Brain Glucose Metabolism	1299
		A.V.Levy, *, **, N.D.Volkow***, J.D.Brodie**, D.N.Bertollo*, A.P.Wolf ****, *Nathan S. Kline Inst. for Psychiatric Research, **NY Medical Ctr, ***Med. Brookhaven Nat'l Lab., ****Chem. Brookhaven Nat'l Lab	
	15.2-4:	Aorta Detection in Magnetic Resonance Images Using Multiple Artificial Neural Networks William T. Katz and Michael B. Merickel, Department of Biomedical Engineering, University of Virginia, Charlottesville, VA	1302
-	15.2-5:	Problems and Limitation of Knowledge-Based 3D Medical Image Analysis	1304
		Atam P. Dhawan, Dept. of Elect. & Comp. Eng., Univ. of Cincinnati, Cincinnati, Ohio	
_	15.2-6:	Image Structure Analysis Supporting Interactive Object Definition	1306
		James. M. Coggins* **, Robin E. Fredericksen*, Stephen M. Pizer*, *Medical Image Display Research Group, Univ. of North Carolina, Chapel Hill, NC, **NASA Goddard Space Flight Center	
_	15.3-1:	A Syllable Based Approach Towards the Intelligibility Study of Impaired Speech	1308
		V. Keramaris, B.K. Sy Queens College of the City Univ. of New York, Dept. of Computer Sci. Flushing, NY	
	15.3-2:	Evaluation of Computer Access Technology - Conceptual Extension of the Tufts-MIT Prescription Guide	1310
		M. Rosen and C. Goodenough-Trepagnier*, Mechanical Engineering Dept., MIT, Cambridge, MA, * Tufts University School of Medicine, MA	
	15.3-3:	Functional Communication Using VIC	1313
		C. Goodenough-Trepagnier, Tufts University School of Medicine, Boston, MA	
	15.3-4:	Toward Gestural Control of Synthetic Speech for Augmentative Communication	1315
		David M. Horowitz, Newman Laboratory for Biomechanics and Human Rehabilitation, Massachusetts Institute of Technology, Cambridge, MA	
	15.3-5:	가 있다면 하는데 가게 하는데 하는데 하는데 하는데 하는데 가게 하는데	1318
		M. Steven Morse, Susan H. Day, Julia May, Univ. of San Diego, Dept. of Elec. Engr., San Diego, CA	
	15.4-1:	Medical Language and Knowledge Base Systems	1320
		P.L.M. Kerkhof, Medwise Working Group, Maarssen, The Netherlands	
	15.4-2:	Knowledge Representation in NST-Expert	1322
	10.1 2.	A. Alonso-Betanzos*,**, V. Moret-Bonillo *,**, J.R. Searle*, L. Devoe***, *Dept. of Biomedical Engineering Research. Med. College of Georgia, Augusta, GA, **Dept. of Applied Physics, Fac. of Physics, U. of Santiago, Spain, ***Dept. of Ob.& Gyn., Med. Coll. of Georgia	
	15.4-3:	Obconsult: A Prototype Knowledge-Based System for the Management of High Risk Pregnancies	1324
		B.A. Donohue, R. Veranes and J.D. Bronzino, Biomedical Eng. Program, Hartford Graduate Center, CT	
	15.4-4:	Theory Discovery in Medicine	1326
		Li Min Fu, Computer and Information Science Department, Univ. of Florida, Gainsville, FL	
	15.4-5:	Computer-Assisted Acquisition of Formalized Knowledge in Pathology and its Significance for Diagnostic Support	1328
		A.M. van Ginneken*, W.Jansen**, A.W.M. Smeulders***, J. van der Lei*, *Dept. of Medical Informatics, Erasmus Univ. Rotterdam,**Lab.of Path Deventer, ***Fac. of Math. and Comp. Science, Univ. of Amsterdam, The Netherlands	
	15.4-6;	Towards Environment-Self-Adjustable Medical Knowledge Bases Jacek Ruskowski, Medical Center Laboratory, Medical Center of Postgraduate Education, Warsaw, Poland	1330
	15 5.1.	A Programming Language for Automated Time Dependent Decision Making	1332
	10.0-1.	Per Winkel, University Hospital, Clinical Chemical Department, Copenhagen, Denmark	
	15.5-2:	Laboratory Test Scheduling Based on Constraint Propagation	1334
	2010 21	T. Matsuto, S. Shiina, Dept. of Laboratory Medicine, Tokyo Medical and Dental University, Tokyo, Japan	
	15.5-3:	Clinical Laboratory Knowledge-Base System - From Crisp to Fuzzy -	1336
		M. Kambe, H. Nishimura, K. Futagami*, K. Morishita, and T. Tsubokura, Dept. of Medical Informatics,	CARATAN

15.5-4:	Improvement of a Real-time Data Check Expert System for Blood Chemistry Analyzer Utilizing Fuzzy Reasoning	1338
	K. Morishita*, K. Nakayashiki*, T. Yokoyama*, H. Uchida** *SDL, Hitachi Ltd., **Naka Works, Hitachi Ltd., Japan	2000
15.5-5:	Medical Knowledge Reasoning Using Diagnosis Weight Sum as Heuristics Yihua Yang*, Jiguang Ge*, Qiulian Gong**, *Zhejiang University, Hangzhou, Zhejiang, P.R. China, **Jiangxi University, Nanchang, P.R. China	1339
15.6-1:	Defining the Intended Use of Medical Expert Systems William A. Hyman, Bioengineering Program, Texas A & M University, College Station, TX	1341
15.6-2:	User Perspectives and Design Considerations for Medical Expert Systems C.E. Williams, W.M. Lively, The Laboratory for Software Research, Dept. of Computer Science, Texas A&M Univ., College Station, Texas	1343
15.6-3:	Implementing Uncertainty-Based Prognostic Structures in NST-EXPERT Vicente Moret-Bonillo*,**, Amparo Alonso-Betanzos*,**, Lawrence Devoe***, John R. Searle*, *Biomedical Engineering Research, Med. College of Georgia, Augusta, GA, **Dept. of Applied Physics, U. of Santiago, Spain, ***Dept. of Ob. & Gyn. Med. College of Georgia, Aug.	1345
15.6-4:	Potential Liability for Defective Expert Systems	1347
	John J. Barrett, Jr., Veronica Winter Saltz, Saul, Ewing, Remick & Saul, Philadelphia, PA	
15.6-5:	Descriptive Validation of an Expert System	1349
15 6 6.	J.M. Fernandez, F. Diez, J. Pluss, G. Pastor, IDS, S.A., Paseo de la Lastellana, Madrid, Spain Knowledge Based System for Orthopedic Trauma Surgical Planning	1051
15.6-6:	RJ. Friedman, Synthes, Paoli, PA	1351
15.7-1:	Robotic Workstation for Office Applications	1353
	K.G. Engelhardt, Michael Sandrof, Whitney Sample, and Roger Edwards, Center for Human Service Robotics, Carnegie Mellon University, Pittsburgh, PA	
15.7-2:	A Graphical Customizable Environment for Medical Information Systems	1355
	F. Staes, L. Laenens, BSO-PASS, HCM-503, Eindhoven, The Netherlands	
15.7-3:	Adams: A Graphic Interaction with Epidemiological Data	1357
15.7-4:	F. Ferri, P. Grifoni, L. Meo-Evoli, F.L. Ricci, Ist. Studi Ricerca Docum. Scientifica-CNR, Rome, Italy Hypermedia for Interacting with Clinical Records	1050
10.7-4.	Alessandro D'Atri*, Fabrizio Prosperi Porta**, Laura Tarantino*, *Dip. Ingeneria Elettrica, Univ. di L'Aquila, Poggio di Roio, L'Aquila, **Dip. Informatica e Sistemistica, Univ."La Sapienza" Roma	1359
15.7-5:	A Knowledge-based Architecture to Integrate Multi-type Data in a Hospital Environment T. Catarci*, and F.M. Ferrara**, *Dipartimento di Informatica e Sistemistica, Univ. di Roma, Roma, Italia, **GESI-Gestione Sistemi per l'Informatica, Rome	1361
15.7-6:	Ergonomic Aspects of Knowledge-Based Systems for Clinical Monitoring Tasks G. Rau, M. Langen, Th. Schecke, Helmholtz-Institute for Biomedical Engineering, Aachen University of Technology, FR Germany	1363
15.8-1:	Parallel Multi-Channel Biologic Signal Processing D.F. Sittig, M. Factor*, Depts. of Anesthesiology & *Computer Science, Yale Univ., New Haven, CT	1365
15.8-2:	Knowledge Acquisition for Multi-Channel Signal Interpretation J.K. Meddahi, B.H. Jansen, Dept. of Electrical Engineering, Univ. of Houston, Houston, Texas	1367
15.8-3:	Signal Interpretation in Anesthesiology	1369
	P. King, A. Jiang, J. Xu, S. Hyman, B. Smith, Depts. of Anesthesiology and Biomedical Eng., Vanderbilt Univ., Nashville, TN	
15.8-4:	A Framework for Intelligent Multi-Channel Biological Signal Interpretation B.M. Dawant, S. Uckum*, Dept. of Elect. Eng., * Biomedical Eng., Vanderbilt Univ., Nashville, TN	1371
15.8-5:	Poni: Didactic Applications P.V. Matsiras, E.R. Carson, S.J. Aukburg, Centre for Measurement & Information in Medicine, City Univ., London, England	1373
15.9-1:	Continued Development of a Knowledge-Based System to Detect Epileptogenic Sharp Transients in the EEG	1374
	John R. Glover, Jr.*, Dimitris N. Varmazis*, Periklis Y. Ktonas*, James D. Frost**, *Dept. of EE, Univ. of Houston, TX, **Dept. of Neurology, Baylor College of Med. & The Methodist Hosp., TX	

Keio University, Yokohama, Japan

Yutaka Fukuoka, Eiji Okada, Hideo Matuski and Haruyuki Minamitani, Faculty of Science and Technology,

23.1-3:	Neural Network Modeling of Dynamical Systems	1413
	N.Z. Hakim, J.J. Kaufman*, R.S. Siffert*, G. Cert**, H.E. Meadows, Dept. of Elect. Eng., Columbia Univ., NY,NY, *Dept. of Orthopaedics, Mt. Sinai Schl. of Med., NY, NY, **NYNEX Science and Tech., White Plains, NY	
23.1-4:	Distributed Optimization with the ALOPEX Algorithms	1415
	I. Marsic, E. Micheli-Tzanakou, Dept. of Biomed. Eng., Rutgers Univ., Piscataway, NJ	
23.1-5:	The ALOPEX Process: Application to Real-Time Reduction of Motion Artifact	1417
	Edward J. Ciaccio and Evangelia Micheli-Tzanakou, Dept. of Biomedical Engineering, Rutgers University, Piscataway, NJ	
23.1-6:	Analysis of Munsell Color Space by a Five-Layered Neural Network	1419
	Shigeki Nakauchi, Masaw Nakano and Shiro Usui, Department of Information and Computer Sciences, Toyohashi University of Technology, Toyohashi, Japan	
23.2-1:	Improvement of Pattern Recognition Rate Using Hybrid Learning - Reverse Learning	
	Processes of Neural Network	1421
	Hideo Matsuki, Yutaka Fukuoka, and Haruyuki Minamitani, Institute of Biomedical Engineering, Faculty of Science and Technology, Keio University, Yokohama, Japan	
23.2-2:	Neural Networks for Pattern Recognition in Medical Diagnosis	1423
	J.H. Frenster, Physicians Educational Series, Atherton, CA	
23.2-3:	Neural Network Modeling of the Visual System	1425
	M.J. Vogia, E. Micheli-Tzanakou, Biomed. Eng. Dept., Rutgers Univ., Piscataway, NJ	
23.2-4:	Image Processing with Artificial Neural Nets	1427
	P. Bellehumeur, G. Lambert Torres*,**, P.J. Lagace***, F.G. Mandoles*, D. Mukhedkar*, Logibro Inc., Montreal, Can.; *Ecole Polytechnique de Montreal, Can., **Escola Federal, Brazil; ***Norwich Univ., VT	
23.2-5:	LPC-Based Neural Network for Automatic Speech Recognition	1429
	Z. Deiri, M.S. and N. Botros, Dept. of Electrical Eng., Southern Illinois Univ., Carbondale, IL	
23.2-6:	Neural Networks vs. Brainwaves: Prospects for Cognitive Theory of Consciousness D. Rokovic, Fac. of Elect. Eng., Belgrade, Yugoslavia	1431
23.3-1:	[10] 이번 프로마이트 및 10 (10 PC	1433
	L. Xiao, E. Micheli-Tzanakou, and T. J. Dasey, Dept. of Biomedical Eng., Rutgers Univ., Piscataway, NJ	
23.3-2:	Neural Network Analysis of Neuronal Spike-Trains	1435
	R. Iezzi, E. Micheli-Tzanakou, Dept. of Biomedical Engineering, Rutgers University, Piscataway, NJ	
23.3-3:	Models of Biological Neurons and Networks Producing EEG-Like Signals	1437
	Alison A. Dingle, Susanne M. Dale, R.H.T. Bates, Dept. of Electrical and Electronic Engineering, University of Canterbury, Christchurch, New Zealand	
23.3-4:	A New Neural Network Model for Temporal Processing	1439
	Bert de Vries and Jose C. Principe, Dept. of Electrical Engineering, University of Florida, Gainesville, FL	
23.3-5:	Saccadic Endpoint From a Backpropation Network Using Initial Eye Displacement	1441
	Saiprasanna Kolli, Larry A. Abel, Ocular Motility Lab., Dept. of Biomedical Eng., Univ. of Akron, Akron, OH	
23.3-6:	Interacting Neural Networks for Tactile Data-Driven Motor Control of the Hand	1443
	A. Starita, A. Sperduti, Dipartimento di Informatica, Universita di Pisa, Pisa, Italy	1000000
23.4-1:	Neural Network with Interacting Oscillators to Generate Low Frequency Rhythm	1445
	Shuji Endo and Yohsuke Kinouchi*, Fukuoka University of Education, Munakata, Japan, *The University of Tokushima, Tokushima, Japan	
23.4-2:	Neural Network Versus Bayesian Diagnosis of Appendicitis	1447
	R. C. Eberhart, R. W. Dobbins, The Johns Hopkins University Applied Physics Laboratory, Laurel, MD	
23.4-3:	Diagnosis and Modelling Alzheimer's Disease through Neural Network Analyses of PET Studies	1449
	J.S. Kipperhan, J.H. Nagel, Dept. of Biomedical Eng., Univ. of Miami, Coral Gables, FL	
23.4-4:	A Neural Network Learning Algorithm for Development of Diagnostic Decision Strategies	1451
	D.L. Hudson, M.E. Cohen,* Univ. of CA, San Francisco, *CA State Univ., Fresno, CA	V-100-00-00-00-00-00-00-00-00-00-00-00-00
23.4-5:	Chromosome Classification Using a Multi-layer Perceptron Neural Net	1453
	Q. Wu, P. Suetens, A. Oosterlinck, ESAT-MI2, Dept. Electrical Engineering, Catholic University of Leuven	
	Kard, Heverlee, Belgium	
23.4-6:	TO BE TO SELECT AND TO THE CONTROL OF THE PERSON OF THE PE	1455
	Mohammad J. Navabi, Richard C. Watt, Kenneth C. Mylrea, Stuart R. Hameroff, Advanced Biotechnology	
	Lab., Dept. of Anesthesiology, University of Arizona State College of Medicine, Tucson, AZ	

23.5-1:	ECG Beat Classification by a Neural Network	1457
	T.H. Yeap*, F. Johnson**, M. Rachniowski**, *Dept. of Elec. Engr., Univ. of Ottawa, Ottawa, Canada, **Heart Institute, Univ. of Ottawa, Ottawa, Canada	
23.5-2:	An Adaptive Algorithm for Coronory Artery Identification in C Cineangiograms R. Nekovei and Y. Sun, Dept. of Electrical Eng., Univ. of Rhode Island, Kingston, RI	1459
23.5-3:	Artificial Neural Networks Applied in Multiple Lead Electrocardiography: Rapid Quantitative Classification of Ventricular Tachycardia QRS Integral Patterns	1461
	A.C. Linnenbank, A. Sippens Groenewegen*, C.A. Grimbergen, Med. Physics & Infor. Dept., *Clin.& Exp. Cardiology Dept., Univ. of Amsterdam, The Netherlands	
23.5-4:	An Experiment on ECG Classification Using Back-Propagation Neural Network Y.S. Tsai, B.N. Hung, S.F. Tung, Dept. of Biomedical Eng., Chung-Yuan Christian Univ., Taiwan, R.O.C.	1463
23.5-5:	[1] [2] [2] [2] [2] [2] [2] [2] [2] [3] [3] [4] [4] [4] [4] [4] [4] [4] [4] [4] [4	1465
23.5-6:	(프로이트 B.	1467
P.23-1:	A Combined Connectionist and Symbolic Approach to Motion Interpretation in Cybernetic Arm Mahyar Zardoshti Kermani, Kambiz Badie, R.M. Hashemi, T. Khoshaba, Biomedical Engineering Laboratory, Amirkabir, University of Technology, Tehran, Iran	1469
P.23-2:	A Study of Backpropagation, Counterpropagation, and Adaptive Resonance Theory Neural Network Models W. Kinser, A. Indrayanto, and A. Langi, Dept. of Electrical and Computer Engr., Univ. of Manitoba, Winnipeg,	1471
	Canada	
P.23-3:	EMG Patterns Classification Based on Back Propagation Neural Network for Prosthesis Control Tony Khoshaba*, Kambiz Badie**, R.M. Hashemi*, *Biomedical Engr. Lab., Amirkabir Univ. of Technology, **Dept. of C&C, Iran Telecom, Research Center (ITRC)	1474
P.23-4:		1476
P.23-5:	Modeling of Muscle EMG to Torque by the Neural Network Model of Backpropagation L.M. Kent, S. Siegler*, A. Guez**, W. Freedman***, Dept. of Biomed. Engr., *Dept. of Mechanical Engr.,	1477
	Dept. of Electrical Engr., *Biomed and Elect. Engr., Drexel Univ., Philadelphia PA	