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Member: PROFESSIONAL ENGINEER (P.Eng.),
IEEE-CSS, AIAA, CASI, ISA,

Mission Statement:

- Foster successful collaborations with industries providing enhanced opportunities for research support which can materialize into patents encompassing innovative achievements.
- Contribute and manage advanced research to respond in a dynamic and profitable manner to the worldwide technical and organizational systems and information technology challenges.
- Create a successful learning environment aimed at bridging the gap between academic knowledge and industrial achievement.
- Initiate activities within professional organizations such as IEEE, AIAA and North American Professional Engineer
- Perform research and development materialized in knowledge disseminated through technical reports, patents, products, journal publications and conference papers.

EMPLOYMENT

University, Company or Organization	Rank or Title	Dates
UNIVERSITY OF BRITISH COLUMBIA www.ece.ubc.ca	Assistant Professor	2000- present
PULSAR INFORMATICS INC.	Consultant	2002 - present
UNIVERSAL DYNAMICS TECHNOLOGIES INC. www.udtl.com	Consultant	1998-2002
BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY	Consultant	2000
UNIVERSAL DYNAMICS TECHNOLOGIES INC., VANCOUVER, CANADA www.brainwave.com	Consultant	1999 – 2000
MIH CONSULTING GROUP, VANCOUVER, CANADA www.mihconsulting.com	President, Owner	2000 – present
DEFENCE AND EVALUATION RESEARCH AGENCY (DERA), BEDFORD, U.K. www.dera.gov.uk	Researcher	1997 – 1998
ROMANIAN AIR TRAFFIC SERVICES ADMINISTRATION (ROMATSA), BUCHAREST, ROMANIA	AIS Specialist	1994 – 1995
R.A. AIRPORT CLUJ-NAPOCA, ROMANIA	Deputy managing director	1993 – 1995

RESEARCH AND DEVELOPMENT ACCOMPLISHMENTS:

I have been responsible for a few of the innovative applications of adaptive and predictive filtering and control in aerospace, biomedical and process control:

- MIMO Adaptive Predictive Controller – BrainWave Multimax – responsible for the algorithm that the commercial product embeds and the management of the software development team.
- Method of Controlling a Marginally Stable Industrial Process – Brainwave – created the algorithm and managed the developer's team that produced a new generation of controllers which cope with integrating and time varying delay systems.
- Estimation of Anesthetic Depth Using Wavelet Analysis of Electroencephalogram – a patent has been generated and currently licensing is on the way with Cleveland Medical Systems Inc.
- Reconfiguration and Scheduling in Flight Using Quasi-LPV High-Fidelity Models and Model Based Predictive Control – innovative results achieved for military aircraft for DERA Bedford U.K.
- Nonlinear Adaptive Control of Systems Exhibiting Static and Dynamic Output Nonlinearities and Nonlinearity Measures – have direct implication in aerospace and process control.
- Automatic Drug Delivery – collaboration with Datex-Ohmeda towards advisory systems for general anesthesia.

SOFTWARE&HARDWARE:

engineering: MATLAB, SIMULINK, MATHCAD, PASCAL, MAPLE

data base: FOXPRO, EXCEL, SQL servers

operating systems: DOS, WINDOWS, WINDOWS NT, UNIX

systems: PCs, SUN-Workstations, DSPACE, PLC

EDUCATION

University or Institution	Degree	Subject Area	Dates
UNIVERSITY OF BRITISH COLUMBIA	P.D.F.	ADAPTIVE CONTROL	JULY 2000
UNIVERSITY OF CAMBRIDGE, U.K.	PH.D.	CONTROL SYSTEMS	JUNE 1998
UNIVERSITY "POLITEHNICA" BUCHAREST, ROMANIA	MA.Sc.	AEROSPACE, AVIONICS	JUNE 1993
UNIVERSITY "POLITEHNICA" BUCHAREST, ROMANIA	B.Sc.	AEROSPACE ENGINEERING	JUNE 1991

- "Theory and Aerospace Applications of Constrained Model Based Predictive Control", Ph.D., Professor J.M. Maciejowski
- "Wind Tunnel Data Acquisition System with Application to Aircraft Modeling", MA.Sc., Professor O.Pletter and Associate Professor C. Constantinescu

PATENTS

- S. Bibian, T. Zikov, G.A. Dumont, C.R. Ries, E. Puil, H.C. Ahmadi, M. Huzmezan, B.A. Macleod, "Method and Apparatus for the Estimation of the Anesthetic Depth Using Wavelet Analysis of the Electroencephalogram", US Patent Pending, **2002**
- M. Huzmezan, W.A. Gough and S. Kovac, "A Method of Controlling a Marginally Stable Industrial Process", U.S. Patent # 5335164, **2000**.

GRANTS

Granting Agency	Subject	\$ CAD	Year
NSERC - DISCOVERY	Nonlinearity measures for Quasi-LPV systems	92,000	2003-2006
NSERC-CHRP	On-line Monitoring Applied to Physiological Parameters in Critical Care	63,855	2003-2005
ASI	Managing Human Circadian Physiology and Optimising Alertness Using a Model-Based Predictive Control System	83,000	2003-2005
CAA	Automatic Drug Delivery Advisory System for Spinal Anesthesia	10,000	2002
Datex	Advisory System for General Anesthesia	10,000	2002
TELF	The Development, and Evaluation of a Clinical Trial Expert System	15,000	2001
Cognitex	Assessment of Conopeptides G1 and K10Q as Novel Neuromuscular Blockers	36,000	2001
MITACS	Mathematical Modeling in Pharmaceutical Development	20,000	2001
Peter Wall	Automation and Robotics	15,000	2001
CFI	Institute for Computing Information and Cognitive Systems	88,550	2001-2003
Organon	Development of an Automated Drug Delivery System	20,000	2000
UDL - ASI	Adaptive Control of Neuromuscular Block	50,000	2000
ASI	Multivariable Adaptive Control	75,000	1998-1999
UDL	Development of a Multivariable Adaptive Controller	120,000	1998- 1999

AWARDS AND DISTINCTIONS

Outstanding Chapter Chair, IEEE Control Systems Society, **2001**
Outstanding Chapter Chair, IEEE Vancouver Section, **2001**
Cambridge Overseas Trust Bursary, University of Cambridge, **1995-1998**
CT Taylor Studentship, University of Cambridge, **1995-1998**
ORS Award, University of Cambridge, **1995-1998**
Pembroke Studentship, Pembroke College, **1995-1998**
College Grant, Pembroke College, April **1996**
W.G. Collins Fund, Engineering Department, March **1997**
Rex Moir Prize, Engineering Department, May **1996**
Lundgren Studentship, University of Cambridge, **1996, 1997**

TEACHING

Current Students: 4 Ph.D., 3 MA.Sc., 1 M.Eng.

Graduated Students: 1 MA.Sc.

Courses: Robust Multivariable Control, Linear and Nonlinear Predictive Control, Systems and Control, Signals and Systems Laboratory, Instrumentation and Design Laboratory, Engineering Project

SERVICES:

Secretary IEEE Section May **2003**

Technical Chair Advanced Process Control Conference, April **2003**

Technical Chair Advanced Process Control Conference, April **2002**

Department of Pharmacology and Therapeutics, Associate Member, July **2001**

Chair of IEEE Control Systems Technical Chapter, Vancouver **1999-2001**

Session Chair for a number of control systems conferences **1997-present**

Reviewer for: IEEE Transactions on Automatic Control, IFAC Automatica, IEEE Transactions on Control Systems Technology, European Journal of Control, AIChE Journal, AIAA Journal of Guidance Navigation and Control, International Journal of Adaptive Control and Signal Processing, American Control Conference, IEEE Conference on Decision and Control, European Control Conference

PERSONAL:

Canadian Citizen, Romanian Citizen, Born: 27.09.1968, Married, Fluent in English, French and Romanian
Skiing, tennis, swimming, basketball, mountaineering, traveling (European, Asian, African and American continents), Romania (politics, social, culture)

REFEREED PUBLICATIONS

Journal, Book and Patent Publications

1. M. Huzmezan, W.A. Gough, G.A. Dumont "Adaptive Control of Integrating Time Delay Systems: A PVC Batch Reactor" Transactions in Control Systems Technology, May **2003**
2. M. Huzmezan, W.A. Gough, G.A. Dumont and S. Kovac "Time Delay Integrating Systems- A Challenge for Process Control Industries- A Practical Solution" Control Engineering Practice, October **2002**
3. S. Bibian, T. Zikov, G.A. Dumont, C.R. Ries, E. Puil, H.C. Ahmadi, M. Huzmezan, B.A. Macleod, "Method and Apparatus for the Estimation of the Anesthetic Depth Using Wavelet Analysis of the Electroencephalogram", US Patent Pending, **2002**
4. M. Huzmezan, W.A. Gough and G.A. Dumont "Adaptive Predictive Regulatory Control with Brainwave", Techniques for Adaptive Control, ISA Control Engineering book series, edited by Dr Vance VanDoren, October **2002**
5. M. Huzmezan, W.A. Gough and S. Kovac, "A Method of Controlling a Marginally Stable Industrial Process", U.S. Patent # 5335164, **2000**.
6. M. Huzmezan and J.M. Maciejowski, "Flight Management Using Predictive Control", Robust Flight Control, **1997** Springer Verlag, Lecture Notes in Control and Information Engineering series, editors: J-F.Magni and S.Bennani.
7. J.M. Maciejowski and M. Huzmezan, "Predictive Control" (tutorial chapter) Robust Flight Control, **1997** Springer Verlag, Lecture Notes in Control and Information Engineering series, editors: J-F.Magni and S.Bennani.
8. M. Huzmezan and J. Maciejowski, "Constrained Predictive Control Methods - A State Space Formulation" Revue Roumaine de Science et Matematique Applique, November **1996.***

Conference Proceedings

1. M. Huzmezan and M. Cheng, "A Simulation Model and Hinf Loop shaping Control of a Quad Rotor Unmanned Air Vehicle", Proceedings of MS'03 Conference, Palm Springs, CA, USA, February **2003**
2. S. Bibian, C. Ries, M. Huzmezan and G.A. Dumont, "Clinical Anesthesia and Control Engineering: Terminology, Concepts and Issues", European Control Conference, Cambridge, UK September 1-4, **2003**
3. G.T. Tan, M. Huzmezan and K.E. Kwok, "On measuring the closed-loop nonlinearity: A Vinnicombe Metric Approach", Control and Decision Conference Maui, Hawaii, USA, December 9-12, 2003
4. M. Cheng and M. Huzmezan, "A combined MBPC/2 DOF Hinf controller for quad rotor unmanned air vehicle", AIAA Atmospheric Flight Mechanics Conference and Exhibit, Austin, Texas, USA, August 11-14, **2003**
5. D. Meade, M. Huzmezan and R. Lewis, "Adaptive model based predictive control of a Kamyr digester", Workshop on Tools for Modelling, Control and Monitoring of Continuous Pulp Digesters, Santa Barbara, CA, USA, January 23, **2003**
6. R. Vetter, D. Majer, M. Huzmezan and D. Meade, "Control of a Simulated Die Casting 2-Dimensional Finite Element Model", APC Conference and Exhibit, Vancouver, BC, Canada, April 28-30, **2003**
7. M. Huzmezan, T. Janiewicz and D. Meade, "Industrial Automation with BrainWave Multimax" International Conference on Industrial Automation, Montreal, QU, Canada June 9-11, **2003**
8. G.T. Tan, M. Huzmezan and K.E. Kwok, "Vinnicombe metric as a nonlinearity measure", European Control Conference, Cambridge, UK September 1-4, **2003**
9. M. Huzmezan "Modifying Human Circadian Rhythm Using Nonlinear Model Based Predictive Control" Proceedings of ACC'03, June **2003**, Denver, Colorado, USA. *
10. G.T. Tan, M. Huzmezan and K. E. Kwok "Vinnicombe Metric as a nonlinearity measure", Proceedings of CSCHE'02, Vancouver, BC, Canada October **2002**
11. T. Zikov, S. Bibian, G.A. Dumont, M. Huzmezan and C. Ries "A Wavelet Based De-Noising Technique For Ocular Artifact Correction of the Electroencephalogram", Proceedings of EMBS-BMES Conference, Houston, TX, USA, October **2002**.*
12. M. Huzmezan and G.A. Dumont "Techniques Methods and Concepts in Adaptive Control" Proceedings of ACC'02, May **2002**, Anchorage, Alaska, USA. *
13. M. Huzmezan, G.A. Dumont, W.A. Gough, T. Janiewicz, S. Kovac and D. Meade "A Multivariable Laguerre-Based Indirect Adaptive Predictive Controller Applied to A Fuel Blending Process", Proceedings of AdConIP Conference, Kumamoto, Japan, June **2002**.*
14. M. Huzmezan and G.A. Dumont "Techniques Methods and Concepts in Adaptive Control" Proceedings of ACC'02, May **2002**, Anchorage, Alaska, USA. *
15. M. Huzmezan, W.A. Gough and S. Kovac "Advanced Control of Batch Reactor Temperature" World Batch Forum, April 2002, Woodcliff Lake, USA
16. W.A. Gough, S. Kovac, M. Huzmezan and G.A. Dumont "Advanced Predictive Adaptive Control of Steam Header Pressure, Saveall, Consistency and Reel Brightness In A TMP Newsprint Mill" Control Systems, May 2002, Stockholm, Sweden
17. S. Bibian, T. Zikov, G.A. Dumont, C.R. Ries, E. Puil, H. Ahmadi, M. Huzmezan and B.A. Macleod "Estimation of the Anesthetic Depth Using Wavelet Analysis of Electroencephalogram" 23rd International Conference of the IEEE Engineering in Medicine and Biology Society, October **2001**, Istanbul, Turkey.
18. L.G. Franciosi, B.A. Macleod, M. Huzmezan, C. Ticea and A. Cosma "A Web-Based Clinical Trial Expert System (WebCTES)" 5th World Conference On Systemics, Cybernetics And Informatics July **2001**, Orlando, USA.
19. M. Huzmezan, G.A. Dumont, W.A. Gough and S. Kovac "Multivariable Laguerre-Based Indirect Adaptive Predictive Control - A Reliable Practical Solution for Process Control" IASTED Modeling and Control, February **2001**, Innsbruck, Austria*
20. M. Huzmezan, G.A. Dumont, W.A. Gough and S. Kovac "Time Delay Integrating Systems a Challenge for Process Control Industries - A Practical Solution " IFAC Workshop on Time Delay Systems, September **2000**, Ancona, Italy.
21. M. Huzmezan and G.A. Dumont, "Direct adaptive predictive control using subspace identification in Laguerre domain in the presence of constraints" IEEE Mediterranean Conference July **2000**, Patras, Greece*
22. M. Huzmezan, S. Kovac, B. Gough, L. Le and G. Roberts, "A New Generation of Adaptive Model Based Predictive Controllers Applied in Process Control" IEEE APC'99 Workshop, April **1999**, Vancouver, Canada.
23. M. Huzmezan and J. Maciejowski, "Reconfigurable Flight Control of a High Incidence Research Model Using Predictive Control" Proceedings of Control **1998**, Swansea, U.K. *
24. M. Huzmezan and J. Maciejowski, "Automatic Tuning for Model Based Predictive Control During Reconfiguration" Proceedings of AERO **1998**, Seoul, South Korea.*
25. M. Huzmezan and J. Maciejowski, "Reconfiguration and Scheduling in Flight Using Quasi-LPV High-Fidelity Models and MBPC Control" Proceedings of ACC **1998**, Philadelphia, USA.*
26. M. Huzmezan and J. Maciejowski, "A Novel Strategy For Fault Tolerant Control" COSY Workshop, Mulhouse, France, 3-5 April **1998**.
27. M. Huzmezan and J.M. Maciejowski, "A Development Space For Model Based Predictive Control (MBPC)" IFAC Symposium on Computer Aided Control Systems Design, Gent **1997***, Belgium
28. M. Huzmezan and J.M. Maciejowski, "Notes on Filtering, Robust Tracking and Disturbance Rejection Used in Model Based Predictive Control Schemes" IFAC SCC'97, Bucharest **1997**, Romania.
29. G. Papageorgiou, M. Huzmezan, K. Glover and J. Maciejowski, "Combined MBPC/H-inf Autopilot for a Civil Aircraft" Proceedings of ACC'97, June **1997**, Albuquerque, USA. *

TECHNICAL REPORTS

1. M. Huzmezan, "Reconfigurable Control Methods and Related Issues - A Survey" Report prepared for the DERA Research Agreement no. ASF/3455, Department of Engineering, University of Cambridge, August **1997**.
2. M. Huzmezan and J. Maciejowski, "Reconfigurable Control Methods and Related Issues - A Survey" Technical report prepared for the DERA under the Research Agreement no. ASF/3455, Department of Engineering, University of Cambridge, August **1997**.
3. M. Huzmezan, "Constrained Predictive Control Methods - Theory and Practice" First Year Report, Department of Engineering, University of Cambridge, October **1995**.
4. M. Huzmezan and J. Maciejowski, "A Strategy For Fault Tolerant Control Using Model Based Predictive Control (MBPC)" Technical report prepared for the DERA under the Research Agreement no. ASF/3455, Department of Engineering, University of Cambridge, February **1998**.
5. M. Huzmezan and J. Maciejowski, "RCAM Design Challenge Presentation Document: The Model Based Predictive Control Approach" Technical report FM(AG08) TP-088-20 GARTEUR, 21st June **1996**.

SUBMITTED PEER REVIEW PUBLICATIONS

1. M. Huzmezan, G. Papageorgiou, "Autopilot Design Using Constrained Real Time Predictive and Hinf Control", Journal of Guidance Control and Navigation, submitted
2. M. Huzmezan and M. Cheng, " Nonlinear Modeling and Control of a Quad Rotor Unmanned Air Vehicle", Journal of Guidance Control and Navigation, submitted
3. T. Zikov, S. Bibian, G.A. Dumont, M Huzmezan and C. Ries "Estimation of the Hypnotic Depth During General Anesthesia Using Wavelet Analysis of the Electroencephalogram", Transactions on Biomedical Engineering, submitted
4. M. Huzmezan, T. Janiewicz and D. Meade, "Industrial Automation with BrainWave Multimax", International Journal of Process Control, in preparation

REFERENCES:

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