

# **Prof. Dr. Eng. Ioan Dumitrache**

## **Scientific publications (2000-2016), selection**

### **A. Monographs and books (national)**

1. **I.Dumitrache, C.Buiu, Algoritmi genetici**, Ed. MEDIAMIRA Cluj, 2000
2. **I. Dumitrache, C. Buiu, O. Ghica, Sisteme numerice pentru conducerea proceselor**, Ed. Electra, 2002
3. *I. Dumitrache, M.Popescu (Editors) – “File de Istorie” – 195 de ani in Universitatea Politehnica Bucuresti, Politehnica Press.*
4. **I. Dumitrache, Ingineria Reglarii Automate**, Editura Politehnica Press, 2005
5. **I. Dumitrache, Ingineria Reglarii Automate**, editie noua revizuita, 750 de pagini, Editura Politehnica Press, 2010

### **As Editor**

1. **Tertiary education and innovation system analysis**, Editura Academiei Române, București, 2006 (impreuna cu I.Mihailescu si A.Curaj)
2. **Automatica** vol. I. - Editura Academiei Române, București, 2009, ISBN 978-973-1883-4,
3. **Automatica** vol. II - Editura Academiei Române, București, 2013
4. **Automatica** vol.III – Aplicatii - Editura Academiei Române, București, 2015

### **B. Monographs, books (international)**

#### **As Editor**

1. **Advances in Intelligent Control Systems and Computer Science**, Springer, 2012
2. **The Proceedings of the 9<sup>th</sup> IFAC / IFORS / IMACS / IFIP / Symposium on Large Scale Systems** – 2001, with F.Filip and S.Iliescu; ISBN: 0-08-043691
3. **The Proceedings of the International Workshops on Intelligent Control Systems**, Ed. Printech, ISBN 973-652-730-1, 2003
4. **The Proceedings of IFAC Conference on Manufacturing and Control of Production and Logistics, MCPL 2007**, with F.Filip
5. **The Proceedings of the IFAC International Conference Supplementary Ways for Improving International Stability SWIIS’2010** – with P. Kopacek, S. Caramihai - 2010
6. **The Proceedings of the second IFAC Symposium on Telematics Applications**, TA 2010

7. **The Proceedings of the 14-th IFAC, Symposium on Informatic Control Problems in Manufacturing** – INCOM , with Th. Borangiu, A.Dolgui, Fl.Filip, 2012
8. **I.Dumitrache**, Adina Magda Florea, Florin Pop – **The Proceedings of the 19-th International Conference on Control Systems and Computer Science**, Published by the IEEE Computer Society, 2013
9. **I. Dumitrache**, A.Florea, F. Pop, A. Dumitrașcu (Editors) – “The Proceeding of 20-th International Conference CSCS – 20/2015. Editura Politehnica Press, Published by the IEEE Computer Society, 2015

### **C. Book chapters (international)**

1. A.B. Pavel, C.I. Vasile , **I. Dumitrache**, **Membrane Computing in robotics Beyond Artificial Intelligence: Contemplations, Expectations, Applications** (Topics in Intelligent Engineering and Infoprmatics), Springer, 2012
2. I. Necoara, **I. Dumitrache**, J. Suykens, **Smoothing techniques-based model predictive control algorithms for networks**, capitol carte in “Time Delay Systems: Methods, Applications and New Trends”, Lectures Notes in Computes Science, Springer 2012, vol. 243
3. C.M. Dumitrascu, **I. Dumitrache**, **Human Skin Detection Using Texture Information and Vector Processing Techniques by Neural Networks**, pp. 59-77, capitol in Advances in Intelligent Control Systems and Computer Science, Springer, 2012
4. S.I. Caramihai, **I. Dumitrache**, **Urban Traffic Monitoring and Control as a Cyber Physical Systems Approach**, pp. 355-367, capitol in Advances in Intelligent Control Systems and Computer Science, Springer, 2012
5. **I. Dumitrache**, Simona Iuliana Caramihai –**The Intelligent Manufacturing Paradigm in Knowledge Society** capitol in “*Knowledge Management*”; Ed: Pasi Virtanen and Nina Helander, ISBN: 978-953-7619-94-7, Publisher: InTech, 2010S.
6. A. Guta, **I. Dumitrache**, D. McFarlone, T. Masood – **Rationals of Holonic Manufacturing Systems in Leather Industry**, pg. 199-212, in Lecture Notes in Artificial Intelligence, Springer 2013
7. S.Olaru, **I.Dumitrache**, D.Dumur – **Geometrical Analysis of Model Predictive Control: A Parametrized Polyhedral Approach**, pg.439-447 in Lecture Notes in Computer Science – Numerical Analysis and its Applications, Springer 2008

### **D. Articles published in journals**

1. C.Buiu, **I.Dumitrache**, **Advanced technologies for remote experimentation**, U.P.B. Scientific Bulletin, Series C, vol. 62, No. 1, pag. 73-82, 2000

D.Gillet

2. **I.Dumitrache,**  
M.Caramihai **Optimal Fed-Batch Bioprocess Control via Intelligent System Based on Hybrid Techniques**, Control Engineering and Applied Informatics Revue, April 2001, Vol. 3, No. 1, ISSN 1454-8658, pag. 5-14
3. **I. Dumitrache** **Intelligent Autonomous Systems**, Revue Roumaine des Sciences Techniques, no. 3, pp. 439-454, Bucuresti, 2000
4. C. Buiu,  
**I. Dumitrache,**  
F. Mihai **Advanced technologies to serve robotics education**, Buletinul Stiintific al Universitatii "Politehnica" din Timisoara, Romania, Seria Automatica si Calculatoare (Periodica Politehnica, Transactions on Automatic Control and Computer Science), Vol. 47 (61), pp. 48-51, 2002
5. **I Dumitrache,**  
A. M. Stanescu,  
A. Curaj,  
S. Caramihai **Supervisory Control and data acquisition for virtual enterprise**, Int. Journal of Production Research, vol. 2, no. 15, pp. 3545-3559, 2002
6. **I. Dumitrache,**  
M. Dragoicea **Neural Mechanisms of Learning and Control in Mobile Robotic Systems**, Buletinul Stiintific al Universitatii Politehnica din Timisoara, Romania, Seria Automatica si Calculatoare, Periodica Politehnica, Transactions on Automatic Control and Computer Science, Vol.48 (62), 2003, ISSN 1224-600X, 2003
7. M. Dragoicea,  
**I. Dumitrache,**  
D.S. Cuculescu **Multi-behavioral model based autonomous navigation of the mobile robots**, International Journal Automation Austria, Vol. 11, Nr.1, pp:1-20, ISSN 1562-2703, 2003
8. C. Buiu,  
**I. Dumitrache,**  
M. Zainea **Design and optimization of a fuzzy logic controller for a simulated autonomous robot**, Control Engineering and Applied Informatics, Vol. 5, Nr. 3-4, pp. 55-63, ISSN 1454-8658, 2003
9. A. Cosmescu,  
**I. Dumitrache** **Multivariable fuzzy controller for the activated sludge process**, Control Engineering and Applied Informatics, Vol. 5, Nr. 3-4, pp. 64-72, ISSN 1454-8658, 2003
10. **I.Dumitrache,**  
M. Dragoicea **Intelligent Techniques for Cognitive Mobile Robots**, Journal of "Control Engineering and Applied Informatics", 2004, No. 2, Vol. 5, pp: 3-8 , ISSN 1454-8658
11. **I. Dumitrache,**  
M. Dragoicea **Some Problems of Advanced Mobile Robot Control**, Journal of "Control Engineering and Applied Informatics", 2005, No. 4, Vol. 7, pp: 11-30, ISSN 1454-8658
12. S. Olaru, D.  
Dumur, **I.**  
**Dumitrache** **Continuity of Control Laws Based on Multiparametric Linear Programs**, International Journal of Tomography and Statistics, vol. 5, 2006
13. **I. Dumitrache,** **Progress in Characterization Modeling&Control of Aerobic**

- A. Chirvase,  
M. Caramihai      **Bioprocesses**, Revue Romaine de Chimie, ISSN 0035-3930, 2006
14. S. Munteanu,  
I. Dumitrache      **The intelligence of a Hybrid System: DiaMed**, CEAI Journal, vol. 8, nr. 2, pp. 54-60, 2006
15. S. Munteanu,  
I. Dumitrache      **Applying DiaMed Hybrid Algorithm to the Diagnosis of Dynamic System**, The Scientific Bulletin of Politehnica University, vol. 68, 2006
16. Dumitrache I.      **From Model-Based Strategies to Intelligent Control Systems**, WSEAS Trans. on Systems and Control, nr. 6, vol. 3, June 2008, pp. 569-575, ISSN 1991-8763
17. Dumitrache I.,  
Iliescu S.,  
Teta P.,  
Fagarasan I.      **Towards Autonomous Control of Electrical Power Systems**, Journal of Control Engineering and Applied Informatics, ISSN 1454-8658, vol. 10, nr. 1, pp. 15-22, 2008
18. I. Necoara,  
I. Dumitrache      **An accelerated optimization algorithm for distributed model predictive control**, Control Engineering and Applied Informatics, vol. 11, no. 3, pp. 16--23, September 2009, ISSN 1454-8658, pp. 8,
19. I. Fadi,  
I. Dumitrache      **Optimization of Control Strategy Assignment.A Framework Structure for Multiple Mobile Robots**, Journal of Control Engineering and Applied Informatics, Vol.11, No. 4, 2009, ISSN 1454-8658, pp. 36-44
20. M. Caramihai,  
I. Dumitrache,  
A. A. Chirvase      **Progress in characterization, modeling and control of aerobic bioprocess. Part II. Aerobic bioprocess modeling and control**, - Revue Roumaine de Chimie, Vol.54, No. 8, 2009, ISSN 0035-3930, pp. 619-635
21. Fadi Issa,  
I. Dumitrache      **Hybrid Geno-Neuro for optimization of Control Solution selection in multi mobile robots**, Buletinul UPB – seria C, no. 3, 2010
22. Olumide OBE,  
I. Dumitrache      **Fuzzy Control of Autonomous mobile robots**, Buletinul UPB, seria C, no. 3, 2010
23. Sorin Olaru,  
Didier Dumur,  
I. Dumitrache      **On the feasibility of Constrained generalized Predictive Control**, Buletinul UPB, seria C, nr. 4, anul 2010
24. O.Arsene,  
I. Dumitrache,  
I. Mihu      **Medicine expert system dynamic Bayesian Networks and Ontology based**, Expert Systems with Applications, 38, 15253-15261, ISSN 0957-4
25. I. Necoara,  
V. Nedelcu,  
I. Dumitrache      **Parallel and distributed optimization methods for estimation and control in networks**, Journal of Process Control, vol.21, no.5, pp 756-766, 2011

26. I.D. Niculae,  
**I. Dumitrache**      **Design of embedded systems able to adapt both scheduling and control parameters**, Buletinul U.P.B., seria C, No. 4, 2011
27. V. Balanica,  
**I. Dumitrache**,  
M. Caramihai      **Evaluation of breast cancer risk using fuzzy logic**, Buletinul U.P.B., seria C, no. 1, 2011
28. C.I. Vasile,  
A.B.Pavel,  
**I. Dumitrache**,  
Gh. Paun      **On the power of enzymatic numerical P systems**, Acta Informatica, September 2012, ISI indexed Vol. 49, Issue 6, pp. 395-412, <http://link.springer.com/journal/236>
29. B.A.Hanchevici,  
M.Patrascu,  
**I. Dumitrache**      **A hybrid PID-Fuzzy Control Linear SISO Systems with variant Communication Delays**, Advances in Fuzzy Systems, 2012
30. S.Avram,  
D.Caragea,  
**I. Dumitrache**      **A new approach to bibliometrics based on semantic similarity of scientific papers**, Control Engineering and Applied Informatics, ISI indexed vol.14, no..3, pp.35-43, 2012
31. C.I.Vasile,  
A.B.Pavel,  
**I. Dumitrache**      **Universality of Enzymatic Numerical P Systems**, International Journal of Computer Mathematics
32. V.Balanica,  
**I.Dumitrache**,  
Preziosi L.      **Breast Cancer Diagnosis based on Speculation Feature and Network Techniques** International journal of Computers Communications and Control Vol.8, Issue, pg. 354-365, 2013.
33. Adrian Bogdan  
Hanchevici, **Ioan Dumitrache**      **Robustness of fuzzy optimal control for variable communication delays in networked control systems – UPB**, Sci.Bull, Series C, vol. 75, Iss 4, pg.13-24, 2013
34. **I.Dumitrache**      **Cyber-Physical-Systems (CPS) – factor determinant in economia bazata pe inovare si cunostinte -. Revista Romana de Informatica si Automatica**, vol.23, no.4, 2013
35. S.Avram,  
V.Velter,  
**I.Dumitrache**      **Semantic Analysis Applications in Computational Biometrics – Control Engineering and Applied Informatics Journal**, Vol.16, no.1, pp.62-69, 2014
36. O.Arsene,  
**I.Dumitrache**,  
Ioana Miha      **Expert System for medicine diagnosis using software agents – Expert Systems and Applications**, 42(2014), pag 1825-1834
37. D. Repta,  
M.Moisescu,  
I.Sacală, **I. Dumitrache**,  
A.M.Stănescu      **Towards the development of semantically enabled flexible process monitoring systems**, International Journal of Computer Integrated Manufacturing, 1-13
38. S.Guță      **Towards the Smart Tannery Enterprise – Journal of the Society of**

- I.Dumitrache,** Leather Technologists and chemists” (SLTC – Journal) pag. 151-156.  
Jadonnis Ioannidis
39. S. Guță,  
**I.Dumitrache** **A multi-agent approach for leather processing monitoring and quality control”** – Buletin UPB, seria C, no.2/2015, pag.17-30.
40. V.Vlădăreanu,  
**I.Dumitrache,** **Versatile Intelligent Portable Robot Control Platform Based on Cyber-Physical- Systems Principles”** – Studies in Informatics and Control; Vol.24/2015; pag.409-419.  
L.Vlădăreanu,  
I.Sacală, M  
Moisescu
41. NAE, Andrei C.,  
and **Ioan**  
**DUMITRACHE.** **"Airborne Collision Avoidance System as a Cyber-Physical System."**  
INCAS Bulletin 7, no. 4 (2015).
42. Cristian Ioan  
Vasile, **Ioan**  
**Dumitrache** "Multi-agent membrane system", Scientific Bulletin UPB, U.P.B. Sci. Bull., Series C, Vol. 78, Iss. 2, 2016 ISSN 2286-3540
43. Cătălin Mircea  
DUMITRESCU,  
**Ioan**  
**DUMITRACHE** "HUMAN SKIN DETECTION USING NEURAL NETWORKS AND BLOCK PROCESSING TECHNIQUES", U.P.B. Sci. Bull., Series C, Vol. 78, Iss. 1, 2016 ISSN 2286-3540
44. Ana Brandusa Pavel  
**Ioan Dumitrache** "HYBRID NUMERICAL P SYSTEMS", U.P.B. Sci. Bull., Series A, Vol. 78, Iss. 2, 2016 ISSN 1223-7027
45. Repta, D.,  
Moisescu, M. A.,  
Sacala, I. S.,  
**Dumitrache, I., &**  
Stanescu, A. M. Towards the development of semantically enabled flexible process monitoring systems. International Journal of Computer Integrated Manufacturing, 30(1), 96-108. (2017).
46. MOISESCU,  
Mihnea Alexandru,  
Ioan Stefan  
SACALA, and **Ioan**  
**DUMITRACHE** . "A CYBER PHYSICAL SYSTEMS APPROACH FOR ROBOTIC SYSTEMS DESIGN." Acta Electrotehnica 57 (2016).

#### Articles published in proceedings volumes of international conferences

1. **I.Dumitrache,** **Intelligent Agent-Based Control Systems in Manufacturing,**  
S.I.Caramihai, 2000 IEEE International Symposium on Intelligent Control,  
A.M.Stanescu pp.369-374
2. N.Constantin,  
**I.Dumitrache,** **Self-Organizing Neural Fuzzy Inference Network for**  
I.Mihu **Intelligent Control,** 2000 IEEE International Symposium on  
Intelligent Control, pp.375-380

3. C.Buiu, **I.Dumitrache** **Advanced Technologies for Intelligent Control Research and Teaching**, 2000 IEEE International Symposium on Intelligent Control, pp.381-384
4. C.Buiu, **I.Dumitrache** **Remote experimentation in intelligent control systems design**, 2nd International Workshop on intelligent Control Systems, aprilie 2000, Bucuresti, Romania
5. N. Constantin  
**I.Dumitrache** **Intelligent control based on selforganizing Networks**, 2nd International Workshop on intelligent Control Systems, aprilie 2000, Bucuresti, Romania
6. **I.Dumitrache**  
N. Constantin **Neural Adaptive Control for Multivariable Nonlinear Processes**, UKACC International Conference CONTROL2000, CD-Rom 155.ps, Univ. Cambridge, UK, September 2000
7. **I.Dumitrache**  
S. Dumitriu **Academic Quality Assurance Procedures in Technical Higher Education**, proc. of Workshop on Quality Management in Higher Education, Technical University of Vienna, nov. 2000, pp. 92-98
8. **I.Dumitrache**,  
S.I.Caramihai,  
A.M.Stanescu **Intelligent Information Systems in Advanced Manufacturing**, Proceedings of the 6<sup>th</sup> International Conference on Concurrent Enterprising (2000), pp.241-246
9. **I.Dumitrache**,  
S.I.Caramihai,  
A.M.Stanescu **Intelligent Agent-based Control Systems in Manufacturing**, Proceedings of the 2000 International Symposium on Intelligent Control, July 17<sup>th</sup> –19<sup>th</sup>, 2000, Rio Patras, Greece, pag. 369-374
10. S.I.Caramihai,  
**I.Dumitrache**,  
A.M.Stanescu **Intelligent Supervision for Flexible Manufacturing Systems**, Computers and computational engineering in control, Patras, Greece, 2000, ISBN 960-8052-12-2, pp. 43-48
11. N.Constantin,  
**I.Dumitrache**, I.Mihu **Self-Organizing Neural Fuzzy Inference Network for Intelligent Control**, Proceedings of the 2000 International Symposium on Intelligent Control, July 17<sup>th</sup> –19<sup>th</sup>, 2000, Rio Patras, Greece, pag. 375-379
12. C.Buiu, **I.Dumitrache** **Advanced Technologies for Intelligent Control Research and Teaching**, Proceedings of the 2000 International Symposium on Intelligent Control, July 17<sup>th</sup> –19<sup>th</sup>, 2000, Rio Patras, Greece, pag. 381-384
13. **I.Dumitrache**, G.Simion,  
M.Truta **Intelligent Control System Based on the Brain Model**, Proceedings of the 2000 International Symposium on Intelligent Control, July 17<sup>th</sup> –19<sup>th</sup>, 2000, Rio Patras, Greece, pag. 385-388
14. **I.Dumitrache**, I.Mihu **Rule-Based Smith Predictor Controller**, Preprints of the 4<sup>th</sup> IFAC International Symposium on Intelligent Components and Instruments for Control Applications, September 13<sup>th</sup>-15<sup>th</sup>,

- 2000, Buenos Aires, Argentina, pag. 397-401
15. **I.Dumitrache**,  
N.Constantin,  
M.Dragoicea **Adaptive Predictive Control Based on Neural Networks**, Preprints of the 4<sup>th</sup> IFAC International Symposium on Intelligent Components and Instruments for Control Applications, September 13<sup>th</sup>-15<sup>th</sup>, 2000, Buenos Aires, Argentina, pag. 403-407
  16. N.Constantin,  
**I.Dumitrache** **Robust Control of Nonlinear Process Using Multiple Models**, Proceedings of the 13<sup>th</sup> International Conference on Control Systems and Computer Science, May 31<sup>st</sup>-June 2<sup>nd</sup>, 2001, Bucharest, Romania, pag. 34-39
  17. **I.Dumitrache**,  
M.Dragoicea **Mobile Robots Adaptive Control Using Neural Networks**, Proceedings of the 13<sup>th</sup> International Conference on Control Systems and Computer Science, May 31<sup>st</sup>-June 2<sup>nd</sup>, 2001, Bucharest, Romania, pag. 176-181
  18. N.Nezam, **I.Dumitrache** **Intelligent System and Wastewater Treatment**, Proceedings of the 13<sup>th</sup> International Conference on Control Systems and Computer Science, May 31<sup>st</sup>-June 2<sup>nd</sup>, 2001, Bucharest, Romania, pag. 192-197
  19. **I.Dumitrache**, I.Mihu,  
N.Constantin **The Robustness of Smith Compensator Based on Fuzzy Controller**, Proceedings of the 13<sup>th</sup> International Conference on Control Systems and Computer Science, May 31<sup>st</sup>-June 2<sup>nd</sup>, 2001, Bucharest, Romania, pag. 198-203
  20. C.Buiu, M.Albu,  
**I.Dumitrache**, D.Gillet **Remote Automatic Control Via Internet**, Proceedings of the 13<sup>th</sup> International Conference on Control Systems and Computer Science, May 31<sup>st</sup>-June 2<sup>nd</sup>, 2001, Bucharest, Romania, pag. 214-219
  21. N.Constantin,  
**I.Dumitrache** **Neuro-Fuzzy Inference Network for Adaptive Control**, Proceedings of the 13<sup>th</sup> International Conference on Control Systems and Computer Science, May 31<sup>st</sup>-June 2<sup>nd</sup>, 2001, Bucharest, Romania, pag. 220-225
  22. **I.Dumitrache**,  
S.I.Caramihai,  
A.M.Stanescu, J.Culita,  
C.Munteanu **Intelligent Autonomous Agents in Manufacturing**, Preprints of the 9<sup>th</sup> IFAC/IFORS/IMACS/IFIP/ Symposium on Large Scale Systems, July 18<sup>th</sup>-20<sup>th</sup>, 2001, Bucharest, Romania, pag. 503-508
  23. **I.Dumitrache**,  
N.Constantin **Adaptive Control Based on Neural Fuzzy Inference Network**, European Control Conference ECC'01, September 4<sup>th</sup>-7<sup>th</sup>, 2001, Porto, Portugal, pag. 2115-2119
  24. **I.Dumitrache**, I.Mihu **On the Robustness of Smith Predictor Controller**, European Control Conference ECC'01, September 4<sup>th</sup>-7<sup>th</sup>, 2001, Porto, Portugal, pag. 3022-3025



25. S.I.Caramihai,  
**I.Dumitrache**      **Hybrid Agent-based Control Archietcture Supported by T-temporal Petri Nets**, 2001 IEEE Joint International Conference on Control Applications & International Symposium on Intelligent Control CCA/ISIC'01, September 5-7, 2001, Mexico City, Mexic
26. N. Constantin,  
**I. Dumitrache**, M. Dragoicea      **Multiple Model Learning for Modeling and Control**, proc. Of 7<sup>th</sup> Int. Symp. An Automatic Control And Computer Science - pp. 37 CDROM, SACCS, Iasi, 2001
27. M. Dragoicea,  
**I. Dumitrache**, N. Constantin      **Adaptive Neural Control for Mobile Robots Autonomous Navigation**, Proceedings of the 7<sup>th</sup> Int. Symposium on Automatic Control and Computer Science SACCS, Iasi, Romania, October 26-27, 2001, ISBN 973-8292-11-5
28. **I.Dumitrache**, M. Dragoicea,  
G. Simion      **Reprezentation of the Internal Model in Brain and Artificial Systems**, 3<sup>rd</sup> Int. Workshop on Intelligent Control Systems ICS, November 29-30, 2001, Bucharest, Romania
29. **I.Dumitrache**, S. Dumitriu      **Advanced Motion Control using DSP Based Fuzzy Controller for Brushless Servodrives**, International Conference on Control Theory and Applications ICCTA'01, Pretoria, South Africa, December 2001
30. **I.Dumitrache**, I. Mihiu      **Knowledge-Based Smith Predictor Controller**, ICS'2001, November 3<sup>rd</sup> International Workshop, Bucuresti, Romania
31. N. Constantin,  
**I. Dumitrache**      **Robust control of nonlinear process using multiple models**, CSCS 13 proceedings, Bucuresti, pp. 34-39, 2001
32. **I Dumitrache**, N.Constantin      **Robust Nonlinear Control based on Multiple Models**, Proceedings, 15th World IFAC Congress, CDROM,Barcelona, Spain, 2002
33. C. Buiu,  
**I. Dumitrache**, F. Mihai      **Complex behaviors of teleoperated robots**, IFAC World Congress, Barcelona, 2002
34. **I Dumitrache**, M. Dragoicea      **Intelligent control techniques for mobile robotics**, IFAC Workshop Intelligent Assembly and Disassembly IAD'03, October 9-11, Bucharest, Romania, pp:198-203, 2003
35. M. Dragoicea,  
**I. Dumitrache**      **Reactive behaviours and environment exploration strategies**, Proceedings of the 14th Int. Conference on Control Systems and Computer Science CSCS14, Bucharest, Romania, pp:82-88, 2003
36. C. Buiu,  
**I. Dumitrache**, M. Zainea      **Design and optimization of a fuzzy logic controller for a simulated autonomous robot**, Proceedings of CSCS14 (I. Dumitrache and C. Buiu, editors), Vol. I, pag. 24-31, 2003

37. **Ioan Dumitrache**, Mihai Spataru **PID control of the real inverted pendulum process**, Proceedings of the 14th International Conference on Control Systems and Computer Science (Editors : I. Dumitrache,C. Buiu), Bucharest,Romania, pp.375-380, 2003
38. **I Dumitrache**, I. Mihiu, R. Misleanu **Advanced Smith Predictor Controller Based On Fuzzy Decision Functions**, Proceedings of the 14th International Conference on Control Systems and computer Science CSCS14, Bucharest, Romania, pg. 60-64, July 2003
39. N.Constantin, **I.Dumitrache** **Advanced Multimodel Adaptive Control**, Int. Workshop on Intelligent Control Systems, pp.87-93, 2003
40. N.Constantin, **I.Dumitrache** **Neural Networks in Predictive Control**, Int. Workshop on Intelligent Control Systems pp.72-77, 2003
41. N.Constantin, **I. Dumitrache** **Model predictive control based on multimodel estimation**, Proc Int. Conf. on Control Systems and Computer Science, CSCS-14, 354-359, 2003
42. **I Dumitrache**, A.M. Stanescu, S.I. Caramihai, A. Curaj **Concurrent Systems Approach for Designing Virtual Enterprise**, Proceedings of the 9<sup>th</sup> ICE in Enterprise Engineering in the Networked Economy, Espoo, Finland, 16-18 June, 2003
43. A.M.Stanescu, **I. Dumitrache**, S.I. Caramihai, P.Pascu, D. Nitescu **Knowledge management modeling framework for distributed concurrent engineering**, Proceedings of the 10<sup>th</sup> ISPE International Conference on Concurrent Engineering: Research and Applications, Madeira, Portugal, 26-30 July, 2003
44. **I Dumitrache**, s.a. **DECID-e – a e-learning Pilot in the Politehnica University of Bucharest**, Proceedings of the 10<sup>th</sup> ISPE International Conference on Concurrent Engineering: Research and Applications, Madeira, Portugal, 26-30 July, 2003
45. **I.Dumitrache**, M.. Dragoicea **Intelligent control techniquis for mobile robotics**, Proceedings of the IFAC Workshop Intelligent Assembly and Disassembly IAD'03, 2004, Elsevier Press, pag. 149-153, ISBN 0-08-044065-7, ISSN 1474-6670
46. **I. Dumitrache** **Intelligent Control of Mobile Robots**, The 7th International Conference on Mechatronics and Precision Engineering, Bucuresti, Mai, pp. 2004, 79-83.
47. **I. Dumitrache**, s.a. **A Des-Supported Agent-Based Control Arhchitecture for Flexible Manufacturing System**, IFAC DECOM-TT 2004, Automatic Systems for building the Infrastructure in Developing Countries, Bulgaria, Oct, 2004, pp.59-67.
48. **I. Dumitrache**, S.Olaru **Embedded Irrigation Controllers – an Integrated Solution for Optimal Water**, IFAC DECOM-TT 2004, Automatic Systems for building the Infrastructure in Developing

- Countries, Bulgaria, Oct, 2004, pp.331-337.
49. **I. Dumitrache**, N. Constantin  
**Multimodel learning techniques for predictive control**, 10th IFAC Symposium on Large Scale Systems: Theory and Application, CDROM, Osaka, Japan, 2004.
  50. **I. Dumitrache**, N. Constantin  
**A New Neural Predictive Design Method for Complex Processes Control**, 10th IFAC Symposium on Large Scale Systems: Theory and Application, CDROM, Osaka, Japan, 2004
  51. **I. Dumitrache**, C. Buiu, Mihai F., Gillet D.  
**Experiments in Remote Collective Robotics. New Pedagogical Scenarios**, World Conference on Educational Multimedia, Hypermedia and telecommunications, Lugano, June 21-26, 2004
  52. N. Constantin, **I. Dumitrache**  
**Advanced Predictive Control Based on Multimodel Learning Techniques**, 16<sup>th</sup> IFAC World Congress, Praga, 4-8 Iulie 2005
  53. C. Buiu, **I. Dumitrache**, A. Dumitrașcu  
**A Conversational Man-Robot Interface to Assist Robotics Education**, 16<sup>th</sup> IFAC World Congress, Praga, 4-8 Iulie 2005
  54. D. Garlasu, **I. Dumitrache**  
**A New Approach for E-Learning in Collaboration Networks**, Proc. of 6<sup>th</sup> Conference on Virtual Enterprise, Valencia, Spain, 2005, pp.243-248
  55. A.M.Stanescu, **I. Dumitrache**  
**A structural Approach for E-learning Paradigm**. Proc. of 12<sup>th</sup> ISPE International Conference on Concurrent Engineering, Dallas, USA, 2005, pp. 167-172
  56. **I. Dumitrache**, I. Mișu, R. Misleanu  
**On the Robustness of Modified Smith Predictor Controller for Time Delay Processes**, Proc. of 15<sup>th</sup> International Conference on Control Systems and Computer Science, Bucuresti, Mai 2005, pp. 354-359
  57. **I. Dumitrache**, D. Garlasu, A.M. Stanescu, C. Ninca  
**A New Approach for E-learning in Robotics**, Proc. Of RAAD'05 14<sup>th</sup> International Workshop on Robotics in Alpe-Adria-Danube Region, Bucuresti, Mai 2005, pp. 240-245
  58. S. Olaru, D. Dumur, **I. Dumitrache**  
**On the Continuity of Control Laws Based on Multiparametric Linear Programming**, 13<sup>th</sup> IFAC Workshop on Control Applications of Optimisation, Paris, France, 2006
  59. A.M. Stanescu, **I. Dumitrache**, I. Mișu, M.A. Moisescu, M. Voinescu, O. Cangea  
**Synergy-focus to Develop Complex Adaptive Systems within Collaborative Network Environment to Health Paradigm**, 8<sup>th</sup> IFIP Working Conference on Virtual Enterprises, Portugal, 2007
  60. A.M. Stanescu, **I. Dumitrache**  
**Towards Interoperability Based Colaborative Research to Support Environment and Health**, Projects in common Europe – Sophia Antipolis 2002, Bruxelles, 2007
  61. **Dumitrache I.**, Stanescu  
**Next generation of intelligent manufacturing systems: a**

- A.M., Caramihai S. **survey**, Conferinta IFAC MCPL 2007, Manufacturing and Control of Production and Logistics, Sibiu, Romania, ISBN 978-973-739-481-1, 2007
62. Caramihai S., **Dumitrache I.**, Stanescu A.M., Munteanu C., Culita J. **Using mobile agent-based techniques in knowledge management for organisational network interoperability**, Conferinta IFAC MCPL 2007, Manufacturing and Control of Production and Logistics, Sibiu, Romania, ISBN 978-973-739-481-1, 2007
63. Stanescu, A. M., **Dumitrache, I.**, Mircea, A., Gherman L., Moisescu, M. **Towards holistic approach for business informatics**, Conferinta IFAC MCPL 2007, Manufacturing and Control of Production and Logistics, Sibiu, Romania, ISBN 978-973-739-481-1, 2007
64. Garlasu, D., **Dumitrache, I.**, Mihiu, I., Moisescu, M. A., Voinescu, M., Sacala, I. S. **Crossdomain «ENVIRONMENT-HEALTH» Interoperable Metasystem**, Conferinta IFAC MCPL 2007, Manufacturing and Control of Production and Logistics, Sibiu, Romania, ISBN 978-973-739-481-1, 2007
65. Caramihai S., **Dumitrache I.**, Stanescu A.M., Culita J. **A cooperative agent based control architecture**, The 5<sup>th</sup> IFAC Intl. WS DECOM-TT 2007, Cesme, Turkey, Proceedings Conf., ISBN 978-975-01864-1-1
66. **Dumitrache, I.**, Stanescu A.M. **Collaborative networks for complex adaptive systems**, Proceedings of the 16<sup>th</sup> International Conference on Control Systems and Computer Science CSCS16, Bucharest, 2007, ISBN 978-973-718-741-3
67. **Dumitrache, I.**, Mihiu, I., Voinescu, M. **A Hybrid Medical Decision Support System**, Proceedings of the 16<sup>th</sup> International Conference on Control Systems and Computer Science CSCS16, Bucharest, 2007, ISBN 978-973-718-741-3
68. Fadi Halal, **Dumitrache, I.** **Genetic optimization of Fuzzy controller for mobile robots**, Proceedings of the 16<sup>th</sup> International Conference on Control Systems and Computer Science CSCS16, Bucharest, 2007, ISBN 978-973-718-741-3
69. **Dumitrache I.**, Mihiu I., Voinescu, M. **An Advanced Decision Support System for Medical Diagnosis**, Proceedings of the 17th IFAC WC 2008, Seoul, Korea, 1:9607-9612., ISBN 978-3-902661-00-5, 2008
70. **Dumitrache I.**, Dragoicea M. **Agent-based Theory Applied in Mobile Robotics**, Proceedings of the 17th IFAC WC 2008, Seoul, Korea, pp. 13719-13724, ISBN 978-3-902661-00-5, 2008

71. **Dumitrache I.,** *Caramihai S.* ***Towards a New Generation of Intelligent Manufacturing Systems, IS 2008 4th International IEEE Conference on Intelligent Systems, 2-6 Sept., Varna, Bulgaria, Conf. Proceeding pp. 433-438***
72. Caramihai M., **Dumitrache I.,** Chirvase A.A. **Progress in Aerobic Bioprocess Modeling and Control. Case Study,** Int. Conference on Industrial Microbiology and Applied Biotechnology, October 9 - 11, 2008, Galați
73. I. Necoara, **I. Dumitrache,** J. Suykens **Smoothing Techniques for Distributed Model Predictive Control Algorithms in Networks,** 8th IFAC Workshop on Time Delay Systems, Sinaia, Romania, September 2009, pp. 6
74. **I. Dumitrache,** S. I. Caramihai, M. A. Stanescu **Knowledge management in intelligent manufacturing enterprise,** Proceedings of AIKED'09 the 8th WSEAS international conference on Artificial intelligence, knowledge engineering and data bases, ISBN 978-960-474-051-2 Cambridge, UK, Feb. 2009, pp. 453-458
75. **I. Dumitrache,** A. M. Stanescu, S. Caramihai, M. Voinescu, M. A. Moiescu, I. S. Sacala **Knowledge Management Based Supply Chain in Learning Organization,** 13th IFAC Symposium on Information Control Problems in Manufacturing, 3-5 June 2009, Moscow, Russia, pp. 6
76. **I. Dumitrache,** I. Mihiu, M. Voinescu **An Agent-Based Approach for Medical Diagnosis,** Conference on Control Systems and Computer Science-17, May 26-29 2009, Bucharest, Romania, ISSN 2066-4451, pp. 331-336
77. **I. Dumitrache,** I. Catana, V. Panduru, M. Patrascu **Fuzzy control strategies for magnetorheological dampers,** 17th Intl. Conference on Control Systems and Computer Science, May 26-29 2009, Bucharest, Romania, ISSN 2066-4451, pp. 215-220
78. S. Caramihai, M. Voinescu, C. Munteanu, **I. Dumitrache** **An Agent-Based Approach for Urban Traffic Simulation and Control,** 6th IFAC International Workshop on Knowledge and Technology Transfer in/to Developing countries: Automation and Infrastructure, September 26-29, 2009, Ohrid, Macedonia
79. M. Voinescu, S. Caramihai, **I. Dumitrache** **A simulation tool for an agent-based mobile robot application,** 10th European Control Conference 2009 - ECC'09, 23-26 August 2009, Budapest, Hungary, ISSN 0947-3580, pp. 6

80. **I. Dumitrache,** I. Mihu, M. Voinescu **An Agent-Based Approach for Medical Diagnosis**, 17th Intl. Conference on Control Systems and Computer Science, May 26-29 2009, Bucharest, Romania, ISSN 2066-4451, pp. 331-336
81. A. M. Stanescu, **I. Dumitrache,** C. Burileanu, N. Vasiliu, M. A. Moiescu, I. S. Sacala **ARCHE3S: first Living Lab enabler in Romania aiming at cross domain synergy-based approach to sustain SMEs**, Proceedings of 15th Intl. Conference C. Engineering, ICE 2009, ISBN 978085358, pp. 25-32
82. M. Stanescu, **I. Dumitrache,** S. Caramihai, M. A. Moiescu, I. S. Sacala **The Grand Unification : Emerging Sciences to Support Interoperability Based Complex Adaptive Systems in Intelligent Manufacturing**, 8ème Congrès International de Génie Industriel, 10-12 Juin 2009, Toulouse, France, pp. 6
83. S. Caramihai, **I. Dumitrache** **An Agent Oriented Software platforme for Urban Traffic Networks Modelling Analysis and Control**, The proceedings of the Second IFAC Symposium on Telematics Applications – TA 2010, pag. 7 – 13
84. O. Arsene, **I. Dumitrache,** I. Mihu **Colaborative Medical Software Agents**, The Proceedings of IFAC Workshop on Intelligent Control Systems – WICS 2010, pag. 39 – 45
85. I.Necoara, **I. Dumitrache,** J.A.K. Suykens **Fast primal-dual projected linear iterations for Distributed Consensus in constrained convex optimization**, The Proceedings of Conference of Decizion and Control, Atlanta, dec. 2010
86. S. Caramihai, **I. Dumitrache** **Integral modeling and control platforme for urban Traffic Networks**, 2010 IEEE International Conference on Man and Cybernetics – SMC 2010, Istanbul, 10-13 oct. 2010
87. M. Patrascu, A.B. Hanchevici, **I. Dumitrache** **Tuning of PID Controllers for Non-Linear MIMO Systems Using Genetic Algorithms**, Proceedings of the 18<sup>th</sup> Congres, Milano, Italy, pp.12644-12649, 2011
88. I.Necoara, V.Nedelcu, **I.Dumitrache,** N.Constantin **A primal-dual consensus algorithm for convex problems from network control and estimation**, Proceedings of the IFAC World Congress, 2011
89. C. Dumitrascu, **I. Dumitrache** **Human Skin Detection using Texture information and vector Procesing by Neural Networks**, The proceedings of CSCS 18, 2011, pp.112-121
90. S.I. Caramihai, **I. Dumitrache,** M.C. Voinescu **Inteligent Agent-Based Systems for Urban Traffic Monitoring and Control**, The proceedings of CSCS 18, 2011, pp.744-750

91. C. Buiu, A.B. Pavel, C. Vasile, **I. Dumitrache** **Perspective of using Membrane Computing in the Control of Mobile Robots**, Proceedings of The International Conference Beyond AI: Interdisciplinary Aspects of a Artificial Intelligence 2011, pp.20-26
92. A.B. Hanchevici, **I.Dumitrache** **On Line tuning of PID Controller for linear SISO system with random Communication delay by using Genetic Algorithms**, IFAC Conference of Advances in PID Control – PID 12, Brescia, 28-30 martie 2012
93. A.B. Hanchevici, **I. Dumitrache** **Intelligent PID control for linear SISO systems with Random Communication Delay by using On-line GA**, Proceedings of 11-th IFAC/IEEE International Conference on Programmable Devices and Embedded Systems, Brno, 2012
94. A.B.Pavel, C.I.Vasile, **I. Dumitrache** **Numerical P systems and applications in robot controlling**, 10-th Brainstorming week Membrane Computing – Seville, 2012
95. O.Arsene, **I. Dumitrache** **Design of Complex Software Systems**, First International Workshop on Cyber Physical Systems – IWOCPS – 2012
96. A.B.Pavel, C.I.Vasile, **I. Dumitrache** **Robot localization implemented with enzymatic numerical P systems**, Living Machines 2012 – the International Conference on Biomimetic and Biohybrid Systems, Barcelona, Spain 2012, Proceedings in Lecture Notes in Artificial Intelligence, Springer, ISI Vol. 7375, <http://rd.springer.com/chapter/10.1007/978-3-642-31525-1-18>
97. A.B.Pavel, C.I.Vasile, **I. Dumitrache** **Improving the universality results of Enzymatic Numerical P Systems**, Proceedings of 10-th Brainstorming week on Membrane Computing. (<http://www.gen.us.es/icsmc2012> proceedings) ISI vol. 2, pp. 207-214
98. A.B.Pavel, C.I.Vasile, **I. Dumitrache**, J. Kelemen **Implementing obstacle avoidance and follower behaviors on robots using Numerical P systems**, ISI Proceedings of the 10-th Brainstorming Week on Membrane Computing, vol. 2, pp.215- 228, 2012
99. **I.Dumitrache**, S.Caramihai, A.M.Stanescu **From Mass Production to Intelligent Cyber-Enterprise**, pg.399-405; The Proceedings of 15-th International Conference on Control Systems and Computer Science, Published by the IEEE Computer Society – 2013
100. **I.Dumitrache**, S.Caramihai **The Enterprise of Future as a Cyber-Physical-Systems** pg. 1326-1330; The proceedings of the Conference on Manufacturing, Modeling, Management and Control – IFAC Conference (Sankt Petersburg) Paper Plaza, 2013

101. **Ioan Dumitrache,**  
Nicolae Constantin,  
Ovidiu Stoica **Some challenges for the Cyber-Physical Energy Systems** pg. 3-9;  
The proceedings of the 2-th IFAC workshop (ICPS-2013) Convergence of Information technologies and control methods with power Systems – IFAC Paper Plaza, 2013
102. **Ioan Dumitrache,**  
Simona Caramihai **Intelligent Cyber-Enterprise in Production Systems,** 19<sup>th</sup> IFAC World Congress Proceedings, IFAC-Papers Online pag. 821-826
103. I.Necoara, **I.Dumitrache** **Iteration Complexity of inexact augmented Lagrangian method,** 19<sup>th</sup> IFAC World Congress Proceedings, IFAC-Papers Online pag. 2927-2932
104. **I.Dumitrache,**  
S.Caramihai **Some Challenges of Big Data on CPS modeling,** Proceedings of the 3th International Workshop on Cyber-Physical Systems IWOCS-3, pag.7-18
105. S.Caramihai,  
**I.Dumitrache** **CPS-Driver for next Industrial revolution – Industrie 4.0,** Proceedings of the 3th International Workshop on Cyber-Physical Systems IWOCS-3, pag.27-37
106. Dogaru, Delia Ioana, and **Ioan Dumitrache.** **"Cyber-physical systems in healthcare networks."** In E-Health and Bioengineering Conference (EHB), 2015, pp. 1-4. IEEE, 2015.
107. Caramihai, Simona Iuliana, and **Ioan Dumitrache.** **"Agricultural Enterprise as a Complex System: A Cyber Physical Systems Approach."** In Control Systems and Computer Science (CSCS), 2015 20th International Conference on, pp. 659-664. IEEE, 2015.
108. **Dumitrache, I.** and Dogaru, D.I., **Smart Grid Overview: Infrastructure, Cyber-Physical Security and Challenges.** In Control Systems and Computer Science (CSCS), 2015 20th International Conference on (pp. 693-699). IEEE. 2015, May.
109. Nedelcu, Valentin, Ion Necoara, and **Ioan Dumitrache.** **"Complexity of an inexact augmented lagrangian method: Application to constrained MPC."** In 19th World Congress of the International Federation of Automatic Control, pp. 2927-2932. 2014.

#### **Papers published in proceedings volumes of national conferences (selection)**

1. **I. Dumitrache,**  
M. Dragoicea **Design of a reactive implementation for autonomous navigation of the mobile robots,** Conferinta Nationala de Robotica CNR'2002, 17-19, Craiova Ed. Universitaria, pp. 111 – 118, Octombrie 2002
2. **I. Dumitrache** **Intelligent Control of Mobile Robots,** The 7th International Conference on Mechatronics and Precision Engineering, Bucuresti, Mai, pp. 2004, 79-83.



### **List of research projects** (selection from the last 10 years)

- Upgrading Excellence by Strengthening Cooperation between research Teams in an enlarged Europe – UNITE, membru in echipa de cercetare, Nr. 248583 – Comisia Europeana, 2011 Anul, Acronim, Titlul, Programul stiintific, link (eventual)
- Algoritmi avansati de decizie multicriteriala si conducerea inteligenta a biotehnologiilor de preparare a produselor terapeutice de uz uman –membru in echipa de cercetare pentru proiectul Nr. 62051 (2008-2011), 2011, Planul National ATHENA
- Integrarea resurselor din institutetele de cercetare si universitati intr-o retea moderna bazata pe TIC, cu scopul sprijinirii inovarii, transferului tehnologic si accesarii programului *Competitivitate si Inovare* – Strategia Lisabona 2007-2013, IN-TECH-TRANSFER, CEEEX Modul CERES 72-2 / 2006, 2007, 2008
- Tehnici Inteligente pentru modelarea, analiza si optimizarea traficului urban, proiect TIM OUT, participare in calitate de expert, 2010