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Date: 20.04.2016

CURRICULUM VITAE

1. Personal information

Name and surname: Octavian-Cezar PASTRAVANU

Date and place of birth: May 16, 1957, Iași, Romania

Present academic position: Professor, The "Gheorghe Asachi" Technical University of Iasi

Current address: Faculty of Automatic Control and Computer Engineering, The "Gheorghe Asachi" Technical University of Iasi, 27 Mangeron Str., Iasi – 700050, Romania

2. Education

Engineering studies (1977–1982): The "Gheorghe Asachi" Technical University of Iasi, Faculty of Electrical Engineering, Specialization in Automation and Computer Engineering – Engineering diploma.

Ph.D. studies (1989–1992): The "Gheorghe Asachi" Technical University of Iasi, Faculty of Automatic Control and Computer Engineering – Ph.D. diploma in Automatic Control Engineering.

Postdoctoral studies (1992–1994):

- The University of Ghent (Belgium), Department of Electrical Energy, Systems & Automation – Techniques of artificial intelligence in systems identification and control – research fellowship granted by the Federal Government of Belgium (1992–1993).
- The University of Texas at Arlington (USA), Automation and Robotics Research Institute – Manufacturing systems with discrete events – research fellowship granted by the University of Texas System (1993–1994).

3. Professional experience / Positions

Engineer (1982-1986) field Control and computers; • The Savinesti Synthetic Fiber Works (C.F.S. Savinesti, Computing Centre (1982–1984); • The National Institute for Research and Development in Automation (I.C.S.I.T. Automatizari), Iasi Branch (1984–1986).

Educator and researcher (1986-1992) field Systems and control; The "Gheorghe Asachi" Technical University of Iasi, Faculty of Electrical Engineering, Department of Electric Drives and Automation • teaching assistant (1986–1990); • assistant professor (1990–1992).

Researcher (1992-1994) field Systems and control; • The University of Ghent, Belgium, Department of Electrical Energy, Systems & Automation (1992-1993), • The University of Texas at Arlington, USA, Automation and Robotics Research Institute (1993-1994).

Educator and researcher (1994-) field Systems and control; The "Gheorghe Asachi" Technical University of Iasi, Faculty of Automatic Control and Computer Engineering, Department of Automatic Control and Applied Informatics • associate professor (1994–1998); • professor (1998-); • Ph.D. supervisor (2005–).

4. Teaching and higher education development

Taught courses: Numerical methods, Systems theory, Discrete-event systems, Physical system modeling, Neural networks and fuzzy logic

Textbooks and monographs: 17 publications; First monographs published in Romania on Petri nets (1997), bond graphs (2001).

Training and research facilities: Laboratory integrated system for computer-assisted process control (1998-2002).

Advances in higher education - Ph.D. theses 5; Knowledge-transfer papers 24.

International institutional collaboration: Developed within the framework of Tempus-Phare European Program; member of the international steering committees of the projects 0886 (HECE, 1991-1992), 2011 (IMPACT, 1991-1994), 11467 (COMPANION 1996-2000).

5. Research – general

ResearcherID profile: <http://www.researcherid.com/rid/B-8401-2011>

GoogleScholar profile: <http://scholar.google.com/citations?user=7TDHHV8AAAAJ&hl=en>

h-index: • Web of Science 10, • Scopus 11, • Google-Scholar 16.

Citations: • Web of Science 417/385, • Scopus 577/500, • Google-Scholar 1131.

Indexed articles: • Web of Science (ISI) 72 (26 journals, 46 conferences), • Scopus 82 (29 journals, 53 conferences), • Google-Scholar 137 (49 journals, 88 conferences), • IEEE Xplore 45 (3 journals, 42 conferences), • Zentralblatt 56 (45 journals, 11 conferences), • DBLP 20 (12 journals, 8 conferences)

Publications: • Journal papers 54, • Conference papers 123, • Book chapters edited by international publishing houses 17, • Book and book chapters edited by national publishing houses 17.

Intellectual property - International patents 2.

Research and development grants: • Coordinator 5, • Partner team leader 2, • Team member 20.

6. Research - topics and work

Including *selected publications & citations* (without self-citations): # isi, # books, # international data bases-idb

• **Qualitative theory of dynamical systems** (diagonal stability and stabilizability; invariant sets and Stein/Lyapunov inequalities; politopic and switching systems);

Matcovschi M.H., Pastravanu O., Voicu M., 2012, Right bounds for eigenvalue ranges of interval matrices -

Estimation principles vs global optimization, *Journal of Control Engineering and Applied Informatics*, vol. 14, nr. 1, pp. 3-13, ISSN: 1454-8658; 3-isi.

Pastravanu O., Matcovschi M.H., 2011, Invariance properties of interval dynamical systems, *International Journal of Systems Science*, vol. 42, issue 12, pp. 1993-2007, ISSN: 0020-7721; 2-isi.

Pastravanu O., Matcovschi M.H., 2011, Comments on "Assessing the stability of linear time-invariant continuous interval dynamic systems", *IEEE Trans. Automatic Control*, vol. 56, no. 6, pp. 1442-1445, ISSN: 0018-9286, 2-isi, 1-book, 2-idb.

Pastravanu O., Matcovschi M.H., 2010, Diagonal stability of interval matrices and applications, *Linear Algebra and its Applications*, vol. 433, issues 8-10, pp. 1646-1658, ISSN 0024-3795, 5-isi, 1-book, 1-idb.

Pastravanu O., Matcovschi M.H., 2010, Linear time-variant systems: Lyapunov functions and invariant sets defined by Holder norms, *Journal of the Franklin Institute*, vol. 347, issue 3, pp.627-640, ISSN 0016-0032, 2-isi.

Pastravanu O., Voicu M., 2006, Generalized matrix diagonal stability and linear dynamical systems, *Linear Algebra and its Applications*, 419, issues 2-3, 299-310, ISSN 0024-3795, 2-isi, 4-idb.

Pastravanu, O., Voicu, M., 2004, Necessary and sufficient conditions for componentwise stability of interval matrix systems, *IEEE Trans. Automatic Control*, 49, 6, 1016-21, ISSN 0018-9286, 7-isi, 2-books, 2-idb.

Pastravanu, O., Voicu, M., 2003, Norm-based approach to componentwise asymptotic stability, *11th IEEE Mediterranean Conference on Control and Automation MED'03*, Rhodes, Greece, Abstracts pp. 101 (ISBN 960-87706-0-20), CD-ROM (6 pg). **1-isi, 1-book** .

• **Discrete event systems** (matrix models; deadlock analysis and prevention; software tools);

- Matcovschi M.H., Mahulea C., Lefter C., Pastravanu O., 2006, Petri Net Toolbox in Control Engineering Education”, *IEEE Conference on Control Applications (CCA 2006)*, Munchen, Proceedings on CD-ROM, 6 pg, IEEE Catalog Number: 06CH37824C. **4-isi, 2-idb**.
- Matcovschi, M.H.; Pastravanu, O., 2005, Flow-invariant sets with respect to the markings of timed continuous Petri Nets, *Proc. 44th IEEE Conf. on Decision and Control & European Control Conf. ECC '05*, Seville, Spain, Cd-Rom, 7726-7731, IEEE Catalog Nr: 05CH37740C, ISBN 0-7803-9568-9, ISSN 0191-2216. **1-isi, 3-idb**.
- Mahulea, C., Matcovschi, M., Pastravanu, O., 2004, Petri Net Toolbox for MATLAB, *The MathWorks Connections Program*, The MathWorks Inc., Learning about Petri Net Toolbox for use with MATLAB. **1-isi, 3-books, 3-idb**. http://www.mathworks.com/products/connections/product_detail/product_35741.html
- Pastravanu, O., Matcovschi, M., Mahulea, C., 2004, Petri Net Toolbox – teaching discrete event systems under Matlab, In Voicu, M. (Ed.), *Advances in Automatic Control*, pp. 247-256, Kluwer International Series in Engineering & Computer Science, 754, (444p), ISBN 1-4020-7607-X. **3-isi**.
- Matcovschi, M., Mahulea, C., Pastravanu, O., 2003, Petri Net Toolbox for Matlab, *11th IEEE Mediterranean Conference on Control and Automation MED'03*, Rhodes, Greece, Abstracts pp. 71 (ISBN 960-87706-0-20) CD-ROM (6 pg). **4-isi, 1-book, 5-idb**.
- Pastravanu, O., Matcovschi, M., Mahulea, C., 2002, *Applications of Petri Nets in studying discrete event systems / Aplicatii ale retelelor Petri in studiul sistemelor cu evenimente discrete* (Book), Editura Gh. Asachi, Iasi, 250p, ISBN 973-8292-86-7. **6-isi, 10-idb**.
- Lewis, F.L., Tacconi, A., Pastravanu, O., Gurel, A., 2001, *Method and apparatus for testing and controlling a flexible manufacturing system*, Patent No.: US 6,185,469 B1, Date of Patent: Feb.6, 2001. **28-US patents, 1-idb**.
- Lewis, F.L., Gurel, A., Bogdan, S., Doganalp, A., Pastravanu, O. 1998, Analysis of deadlock and circular waits using a matrix model for flexible manufacturing systems, *Automatica*, Vol. 34, No. 9, 1083-1100, ISSN 0005-1098. **42-isi, 4-books, 46-idb**.
- Pastravanu, O., 1997, *Discrete event systems – Qualitative techniques based on Petri net formalism / Sisteme cu evenimente discrete – Tehnici calitative bazate pe formalismul retelelor Petri* (Book), Editura Matrix Rom, Bucuresti, 243p., ISBN 973-9254-61-6. **2-isi, 1-idb**.
- Huang, H.H., Lewis, F.L., Pastravanu, O., Gurel, A., 1995, Flow-shop scheduling design in an FMS matrix framework, *Control Engineering Practice*, Vol.3, No.4, 561-568, ISSN 0967-0661. **5-isi, 5-idb**.
- Lewis, F.L., Huang, H.H., Pastravanu, O., Gurel, A., 1995, Control system design for flexible manufacturing systems, In Raouf, A., Ben Daya, M. (Eds), *Flexible Manufacturing Systems: Recent Developments*, pp. 253-290, Elsevier (324p), ISBN 978-0-444-89798-5. **6-isi, 8-idb**.
- Pastravanu, O., Gurel, A., Lewis, F.L., Huang, H.H., 1994, Rule-based controller design algorithm for discrete event manufacturing systems, *Proc. of 1994 American Control Conference ACC'94* (IEEE), Baltimore-Maryland, pp. 299-305, IEEE Cat. No. 94CH3390-2, ISBN 0-7803-1783-1. **3-isi**.
- Lewis, F.L., Huang, H.H., Pastravanu, O., Gurel, A., 1994, A matrix formulation for design and analysis of discrete event manufacturing, *Proc. of the IEEE Int. Conference on Systems, Man, and Cybernetics*, San Antonio-Texas, pp.1700-1705, IEEE Cat. No. 94CH3571-5, ISBN 0-7803-2129-4. **4-isi, 4-idb**
- Lewis, F.L., Pastravanu, O., Huang, H.H., 1993, Controller design and conflict resolution for discrete event manufacturing systems, *Proc. of the 32nd Conference on Decision and Control CDC'93* (IEEE), San Antonio-Texas, pp. 3288-3293, IEEE Cat. No. 93CH3307-6, ISSN 0191-2216. **14-isi, 1-book, 4-idb**
- **Neural networks in control** (dynamical neural networks; neural-network-based-models).
- Pastravanu, O., Matcovschi, M., 2005, Absolute componentwise stability of interval Hopfield neural networks, *IEEE Trans. Systems Man and Cybernetics B*, 35, 1, 136-41, ISSN 1083-4419. **3-isi, 1-idb**
- Lazar, M., Pastravanu, O., 2002, A neural predictive controller for non-linear systems, *Mathematics and Computers in Simulation*, 60, 3-5, 315-24, ISSN 0378-4754. **39-isi, 34-idb**.
- Teodosiu, C., Pastravanu, O., Macoveanu, M., 2000, Neural network models for ultrafiltration and backwashing, *Water Research*, 34, 18, 4371-80, ISSN 0043-1354. **54-isi, 22-idb**
- Jagannathan, S., Lewis, F.L., Pastravanu, O., 1996, Discrete-time model reference adaptive control of nonlinear dynamical systems using neural networks, *Int. Journal of Control*, Vol. 64, No. 2, 217-239, ISSN 0020-7179. **22-isi, 11-idb**
- Jagannathan, S., Lewis, F.L., Pastravanu, O., 1994, Model reference adaptive control of nonlinear dynamical systems using multilayer neural networks, *Proc. IEEE Conf. on Neural Networks, Orlando-Florida*, pp. 4766-4771, IEEE Cat. No. 94CH3429-8, ISBN 0-7803-1901-X. **4-isi, 9-idb**.

- **Control systems** (modeling, analysis, design)

- Ghiță N., Kloetzer M., Pastravanu O., 2011, Probabilistic car-like robot path planning from temporal logic specifications, *Proc. of the 15th International Conference on System Theory, Control and Computing - ICSTCC 2011*, pp. 249 – 254; October 14 - 16, 2011, Sinaia, Romania, IEEE Catalog Number CFP1136P-PRT, ISBN: 978-973-621-322-9. **2**-isi, **1**-book, **2**-idb.
- Kloetzer M., Mahulea C., Pastravanu O., 2011, A probabilistic abstraction approach for planning and controlling mobile robots, *Proc. of the 16th IEEE Conference on Emerging Technologies and Factory Automation, ETFA'2011*, 5-9 Sept. 2011, Toulouse, ISBN: 978-1-4577-0017-0. **1**-isi, **2**-idb.
- Vrabie, D., Pastravanu, O., Abu-Khalaf, M., Lewis, F.L., 2009, Adaptive optimal control for continuous-time linear systems based on policy iteration, *Automatica* 45 (2), pp. 477-484, ISSN: 0005-1098. **94**-isi, **2**-books, **88**-idb
- Vrabie D., Pastravanu O., Lewis F., 2007, Policy iteration for continuous-time systems with unknown internal dynamics, *The 15th Mediter. Conf. on Control and Automation MED'07*, Athens, Greece, June 27-29, 2007, Conference Program and Book of Abstracts, pp. 62, ISBN 978-96-0254-664-2, CD 6 pp. **4**-isi, **2**-books, **6**-idb.
- Matcovschi M., Popescu C., Pastravanu O., 2005, A new approach to hybrid system simulation: development of a Simulink library for petri net models, *Control Engineering and Applied Informatics*, Vol. 7, No. 4, pp. 55-62, ISSN 1454-8658. **4**-idb.
- Lazar, M., Heemels, W.P.M.H., Weiland, S., Bemporad, A., Pastravanu, O., 2005, Infinity norms as Lyapunov functions for model predictive control of constrained PWA systems, In Morari, Manfred; Thiele, Lothar; Rossi, Francesca (Eds.) *Hybrid Systems: Computation and Control*, Lecture Notes in Computer Science, 3414, pp. 417-432, Springer, ISSN: 0302-9743, ISBN: 978-3-540-25108-8. **9**-isi; **21**-idb.
- Pastravanu, O., Ibanescu, R., 2001, *Bond-Graph language in modeling and simulation of physical-technical systems / Limbajul bond-graph in modelarea si simularea sistemelor fizico-tehnice* (Book), Editura Gh. Asachi, Iasi, 469p, ISBN 973-8292-12-3. **2**-isi, **1**-book, **4**-idb.

7. Awards

- “Tudor Tănăsescu” Award of the Romanian Academy (2007) for a group of papers on “Flow invariance in the qualitative analysis of dynamical systems” – published in 2005.
- Fellowship awarded by the University of Texas System (1993) for postdoctoral studies in Technical Sciences.
- Fellowship awarded by the Belgian Government (1992) for postdoctoral studies in Technical Sciences.

8. Synergistic activities

- Member of the Academy of Technical Sciences of Romania (2005-).
- Member of Technical Committee TC 1.3. Discrete Event and Hybrid Systems – IFAC “International Federation of Automatic Control” (2005-).
- Member of the Committee “Engineering Sciences” of the National Research Council for Higher Education CNCSIS (2006-2011).
- Member of the Committee “Engineering Sciences” of the National Research Council CNCS (2012-2013).
- Member of the Committee “Computers, Information Technology and Systems Engineering” of the National Council of Titles, Diplomas and Certificates CNATDCU (2011-).
- Executive Director of the Doctoral School “Systems Engineering, Computers and Information Technology” of the “Gheorghe Asachi” Technical University of Iasi (2006-2012).
- Member of the Council of University Doctoral Studies (CSUD) of the “Gheorghe Asachi” Technical University of Iasi (2012-).

