

CURRICULUM VITAE

June, 2010

1 Personal.

Name: Retchkiman Königsberg Mordejai Zvi.

Place of birth: Mexico City, (1959).

Marital status: single.

Nationality: Mexican.

1.1 Home address.

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Computer Research Center,

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Zacatenco,

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2 Education.

2.1 Basic Education.

Colegio Hebreo Tarbut, (1962-1977).

2.2 University Education.

- B.Sc in Electromechanical Engineering with honors at the National Autonomous University of Mexico with the thesis titled 'Design and Construction of a Computer controlled Robot', (1977-1982).

- Undergraduate and Graduate courses in Mathematics at the Science Faculty of the National Autonomous University of Mexico, (1984-1986).
- M.Sc in Theoretical Mathematics at the Weizmann Institute of Science, Israel, (1986-1988).
Thesis: ‘Topics in Interpolation Theory’.
Thesis grade: good.
Examination grade: very good.
Advisor: Professor Dr. Harry Dym.
- M.Sc in Electrical Engineering at the Polytechnic Institute of Brooklyn, New York, USA, (1988-1989).
Graduate point average: 3.8/4.
- Sc.D at the Centro de Investigacion y de Estudios Avanzados del Instituto Politecnico Nacional, (1990-1993)
Thesis titled: ‘Output Tracking for Nonlinear Systems’
Advisors: Professor Dr. Rafael Castro and Professor Dr. Jaime Alvarez.
- As part of my Sc.D program I spent a 4 months visit to the Electrical Engineering Department of Duisburg University, Germany, (1991-1992).
Advisor: Professor Dr. Paul. M. Frank.
- Post-Doctoral stay at the Polytechnic University: Brooklyn, New York, where I obtained some results in Nonlinear Control Systems, specifically in stabilization of non-minimum phase plants and controllability of Nonholonomic Systems. Besides my research work at Polytechnic, I also taught two graduate courses, (1994-1995).
Advisor: Professor Dr. Farshad Khorrami.

3 Academic Experience.

- Lecturer in Automatic Control at the undergraduate level at the National Autonomous University of Mexico, (1982-1984).
- Lecturer in Mathematics at the graduate level at the Centro de Investigacion y de Estudios Superiores del Instituto Politecnico Nacional, (1990).
- Lecturer in Control Systems I and Optimization at the Polytechnic University of Brooklyn, (1994-1995).
- Lecturer in Applied Mathematics: Set Topology and Mathematical Analysis (undergraduate level), and at the M.Sc program in Biotechnology, Autonomous University of Coahuila, (1995-1997).
- Lecturer in Discrete Mathematics, Numerical Mathematics, Probability Theory, Petri nets, Discrete event systems and Intelligent control at the M.Sc and Ph.D program in Computer Science at the Computer Research Center of the National Polytechnic Institute, (1997- present)
- Head of the Automatization Department of the Computer Research Center (National Polytechnic Institute), (1998- 2003).

- Sabbatical leave at the Department of Computer Science (Coloured Petri Net Group) of the University of Aarhus, Denmark, (2004-2005).
- Member of the editorial board of the journal Applied Mathematical Sciences published by Hikari Ltd since 2007, <http://www.m-hikari.com/>.
- Advisory Board Member of Scientific Journal International, (2007- present).

4 Publications

4.1 Conferences:

- Z. Retchkiman, R. Castro, J. Alvarez, 'Asymptotic Output Tracking Through Singular Points for Uncertain Nonlinear Systems', Proceedings of the 32nd IEEE Conference on Decision and Control, Arizona New Mexico, 1993.
- Z. Retchkiman, 'The Problem of Output Tracking for Nonlinear Systems in the Presence of Singular Points', American Control Conference '93, San Francisco, CA.
- Z. Retchkiman, 'A Note on a Change of Coordinates for Nonlinear SISO systems with Singular Points', American Control Conference '93, San Francisco, CA.
- Z. Retchkiman, 'Asymptotic Output Tracking for a large class of Uncertain SISO Nonlinear Systems: Stability', International Federation of Automatic Control, IFAC World Congress 93, Sydney, Australia.
- Z. Retchkiman, 'The Disturbance Decoupling Problem for Nonlinear Systems and its relation to the solution of certain kind of Partial Differential Equations', First International Conference on Dynamic Systems and Applications, Atlanta 93.
- Z. Retchkiman, F. Khorrami, J. Rastegar, 'Trajectory Planning and Open Loop Control for Non-holonomic Control Systems', American Society of Mechanical Engineers, ASME 94, Minnesota, MN.
- J. Rastegar, F. Khorrami, Z. Retchkiman, 'Inversion of Nonlinear Systems via the Trajectory Pattern Method', IEEE Conference on Decision and Control, Orlando, Florida, 1994.
- Z. Retchkiman, 'Asymptotic Output Tracking for A Class of Non-Linear Systems with Singular Points', Nonlinear Control System Design Symposium, NOLCOS'95, Tahoe City, CA, 1995.
- Z. Retchkiman, 'Asymptotic Output Tracking for The Ball and Beam example'. IEEE-SMC and IMACS Multiconference CESA '96, Lille, France, July 1996.
- Z. Retchkiman and F. Khorrami, 'The Time Optimal Control Problem for a class of Nonholonomic Systems: A case study', International Federation of Automatic Control, IFAC World Congress 96, San Francisco, CA.
- Z. Retchkiman and G. Silva, 'Comparison Principles for Singularly Perturbed Systems', International Symp. on Mathematical Theory of Networks and Systems MTNS 96, St Louis MO, June 1996.
- Z. Retchkiman and G. Silva, 'Stability Analysis of Singularly Perturbed Systems via Vector Lyapunov Method', 35th IEEE Conference on Decision and Control, Kobe, Japan 1996.

- Z. Retchkiman , ‘Practical Stability of Discrete event Systems’, American Control Conference ’98, Philadelphia, PA, June 1998.
- Z. Retchkiman and G.Silva, ‘Vector Lyapunov Functions for the Stabilization of Nonlinear Systems’, IFAC Nonlinear Control Systems Design Symposium NOLCOS ’98, University of Twente, Enschede, The Netherlands, July 1998.
- G. Silva, Z. Retchkiman and F. Dzul, ‘Stabilization Techniques for Singularly Perturbed Systems’, VIII IFAC Latin-American Control Conference, Viña del Mar, Chile, November 1998.
- Z. Retchkiman, ‘Stability and Stabilization Methods for a class of Discrete event systems modeled by Coloured Petri Nets’, International Federation of Automatic Control, IFAC World Conference, Beijing China, June 1999.
- Z. Retchkiman, ‘From Stability to the Stabilization problem of Discrete event Systems modeled by Petri Nets’, American Control Conference ’99, San Diego, Cal, June 1999.
- Z. Retchkiman, ‘Stabilization and Regulation of a Robotic System modeled by Petri Nets’, Dynamic Systems and Applications International Conference, Atlanta, Georgia, May 1999.
- Z. Retchkiman and E. Rubio, ‘Stability Analysis of an Hydraulic System using Intelligent Techniques’, IEEE -SMC ’99 Conference, Tokyo, Japan, October 99.
- Z. Retchkiman and F. Rios, ‘The Load Balancing Problem in Parallel Distributed Systems’, IEEE -SMC ’99 Conference, Tokyo, Japan, October 99.
- Z. Retchkiman, ‘The Load Balancing Problem with Timed Delays’. 16th IMACS WORLD CONGRESS 2000, Lausanne, Switzerland..
- Z. Retchkiman, ‘A Vector Lyapunov Function Approach for the Stabilization of Discrete Event Systems’. American Control Conference ’00, Chicago, June 2000.
- Z. Retchkiman, ‘Stability and Stabilization techniques for Discrete Event Systems modeled by Coloured Petri Nets’., 2000 IEEE CCA/CACSD Joint Conference, Alaska, U.S.A.
- Z. Retchkiman and A. Gonzalez, ‘Modeling, Stability, Regulation and Verification of a Distillation column based on an Expert controller’, 4th World Multiconference on Systemics, Cybernetics and Informatics (SCI2000) and the 6th International Conference on Information System Analysis and Synthesis (ISAS2000), Orlando, Florida.
- Z. Retchkiman, ‘Performance achievement for a class of Discrete Event Systems modeled with place-transitions Petri nets using Lyapunov methods’, 40th IEEE Conference on Decision and Control, Orlando, Florida, 2001.
- Z. Retchkiman, ‘Modeling, stability and Regulation of a Liquid Tank’, Intelligent Systems and Control International Conference (ISC2002), Tsukuba, Japan, 2002.
- Z. Retchkiman, ‘Modeling and stability analysis of a class of dynamical systems with switching inputs’, International Conference on Dynamical Systems and Applications, Atlas Mathematical Conference Abstracts, Atlanta, U.S.A, 2003.
- Z. Retchkiman, ‘Modeling, Stability, and Regulation of Fuzzy Rule-Based Systems’, WSEAS Transactions on Systems, ISUE 2, Vol 3, Conferences in Udine, Italy, 2004.

- Z. Retchkiman, ‘Modeling, Stability and Regulation theory for a class of Hybrid systems with applications’ VII Triennial International SAUM Conference, Belgrade, 2004.
- J. Clempner and Z. Retchkiman, ‘Business process modeling applications using Decision process Petri nets’, WSEAS MCBE, 2005.
- Z. Retchkiman, ‘Modeling, Stability and Regulation for Genomical Dynamical Systems’, IMACS, Paris, 2005.
- Z. Retchkiman, ‘Modeling, Analysis and Optimizat on of Decision Process Systems’, MODSIM05, Melbourne Australia, 2005.
- Z. Retchkiman, ‘Integer Factorization and Twin Primes Verification Algorithms’, NPSC, Atlanta U.S.A, 2006.
- Z. Retchkiman, ‘Primes and Twin Primes Generator Algorithms’, CESA, Beijing China, 2006.
- Z. Retchkiman, ‘A Vector Lyapunov Approach to the Stability Problem for the n-Population Continuous Time Replicator Dynamics’, Dynamic Systems and Applications, Atlanta U.S.A, May 2007.
- Z. Retchkiman, Information Technology Strategic Planning: Modeling, Analysis and Verification of Business Process, MODSIM 07.
- Z. Retchkiman, ‘A Combinatorial Game Mathematical Checkmate Control Procedure for a class of Chess endgames, Chinese CDC, Yantai, China, July 2008,
- Z. Retchkiman, ‘A Generalized Eigenmode Algorithm for Reducible Regular Matrices over the Max-Plus Algebra’, Chinese Control and Decision Conference, Guilin China, June 2009.
- Z. Retchkiman, ‘Modeling and Analysis of the Metro-bus Public Transport System in Mexico City using Timed Event Petri Nets and Max-Plus Algebra’, 18th IMACS WORLD CONGRESS MODSIM09, Cairns Australia, July 2009.
- Z. Retchkiman, ‘Modeling the Game of Arimaa with Linguistic Geometry’, Computational Intelligent Games IEEE, Milan Italy, September 2009.
- Z. Retchkiman, Timetable Design for a Helicopter Maintenance Process using Timed Event Petri Nets and Max-Plus Algebra, Chinese Control and Decision Conference, Xushou China, May 2010.
- Z. Retchkiman, A Mixed Lyapunov-Max-Plus Algebra approach to the Stability Problem for a two Species Ecosystem Modeled with timed Petri Nets, International Conference on Swarn Intelligence, Beijing China, June 2010.

4.2 Journals:

- Z. Retchkiman, R. Castro and J. Alvarez. ‘Asymptotic Output Tracking Through Singular Points for Nonlinear Systems: Stability, Disturbance Rejection and Robustness’. International Journal of Nonlinear and Robust Control, Vol 5, pp. 553-572 (1995).
- G. Silva and Z. Retchkiman, ‘Stability Analysis of Singularly Perturbed Systems via Vector Lyapunov Method’. Dynamic Systems and Applications, Dynamic Publishers Inc., Atlanta, GA, 1997.

- Z. Retchkiman and G. Silva, ‘A Vector Lyapunov Function Approach for the Stabilization of Nonlinear Systems’. Dynamic Systems and Applications, Dynamic Publishers Inc., Atlanta, GA, 1998.
- Z. Retchkiman, ‘Practical Stability of a class of Discrete event systems modeled by Coloured Petri Nets using Lyapunov and Comparison Methods’. Communications in Applied Analysis, , Vol. 6, No. 4 , pp. 441-448. Dynamic Publishers Inc, GA., 2002.
- Z. Retchkiman, ‘The Load Balancing Problem’. Neural, Parallel and Scientific Computations, 1999.
- Z. Retchkiman and E. Rubio, ‘Modeling and stability analysis of a liquid tank’. International Journal of Applied Mathematics, Vol. 2, No 7, 839-848, 2000.
- Z. Retchkiman, ‘A Vector Lyapunov Function Approach for the Stabilization of Discrete Event Systems’. International Journal of Applied Mathematics, Vol. 2, No 7, 829-838, 2000
- Z. Retchkiman, ‘Stability and Stabilization techniques for Discrete Event Systems modeled by Coloured Petri Nets’. International Journal of Applied Mathematics, Vol. 3, No 2 , 209-220, 2000.
- Z. Retchkiman, ‘Modeling, Stability, Regulation and Verification of a Distillation Column based on an Expert Controller’. International Journal of Applied Mathematics, Vol. 4, No 4, 435-451, 2000.
- Z. Retchkiman, ‘Modeling, Stability, Regulation of an Hybrid System. A case study: The Distillation column’. International Journal of Differential Equations and Applications, Vol. 2, No 3, 285-301, 2001.
- Z. Retchkiman, ‘The Load Balancing Problem with Timed Delays’. International Journal of Mathematics, Vol. 1, No 1, 23-30, 2001.
- Z. Retchkiman, ‘Performance achievement for a class of Discrete Event Systems modeled with place-transitions Petri nets using Lyapunov methods’, International Journal of Applied Mathematics, Vol. 7, No 3, 245-263, 2001.
- Z. Retchkiman, ‘Modeling, stability and regulation of a distillation column using coloured Petri nets and Lyapunov methods’. International Journal of Mathematics, Vol.1, No 5, 431-443, 2002.
- Z. Retchkiman, ‘Business process modeling and verification’. International Journal of Computational and Numerical Analysis and Applications, Vol 1, No 4, 333-352, 2002.
- Z. Retchkiman, ‘Modeling, stability and regulation of a liquid tank system using coloured Petri nets and Lyapunov methods’, International Journal of Differential Equations and Applications, Vol 6, No 2, 181-195, 2002.
- Z. Retchkiman, ‘Modeling, stability and regulation for a class of dynamical systems with switching inputs’, International Journal of Pure and Applied Mathematics, Vol 8, No 3, 265-278, 2003.
- Z. Retchkiman, ‘Modeling and stability analysis of a class of dynamical systems with switching inputs’, International Mathematical Journal, Vol 3, No 10, 1087-1098, 2003.
- Z. Retchkiman, ‘Stability Analysis of Difference Equations and its Application to Discrete Event Systems modeled with Petri nets’, International Mathematical Journal, Vol 5, No 4, 2004.

- Z. Retchkiman, 'Modeling, Stability, and Regulation of Fuzzy Rule-Based Systems', International Journal of Pure and Applied Mathematics, Vol 10, No 2, 2004.
- Z. Retchkiman, 'Switching Modeling, Stability and Regulation for Biological Systems: Genomics', International Journal of Pure and Applied Mathematics, Vol 12, No 3, 2004.
- Z. Retchkiman, 'To become unstable can be a good dynamical property!', International Journal of Pure and Applied Mathematics, 2004.
- Z. Retchkiman, 'Modeling, stability and regulation for genomical dynamical systems', International Journal of Hybrid Systems, Vol 4, No 1, 2005.
- Z. Retchkiman, 'Stability theory for a class of dynamical systems modeled with Petri nets', International Journal of Hybrid Systems, Vol 4, No 1, 2005.
- Z. Retchkiman, 'Decision Process Systems: Modeling, Analysis and Optimization', International Journal of Pure and Applied Mathematics, Vol 26, No 4, 2006.
- Z. Retchkiman, 'Business process modeling and validation using Decision process Petri nets', International Journal of Pure and Applied Mathematics, Vol 26, No 3, 2006.
- Z. Retchkiman and J. Clempner, 'Decision Process Petri nets: Analysis and Optimization', Neural, Parallel and Scientific Computations, (16) 2005.
- Z. Retchkiman, 'Primes and Twin Primes Generator Algorithms', accepted for publication in the International Journal of Pure and Applied Mathematics, 2006.
- Z. Retchkiman, 'Integer Factorization and Twin Primes Verification Algorithms', accepted for publication in the International Mathematical Journal, 2006.
- Z. Retchkiman, 'Primes and Twin Primes Verification and Generator Algorithms', Neural, Parallel and Scientific Computations, (14) 2006.
- Z. Retchkiman, 'A Vector Lyapunov Approach to the Stability Problem for the n-Population Continuous Time Replicator Dynamics', International Mathematical Forum, 2007.
- Z. Retchkiman, 'A Combinatorial Game Mathematical Checkmate Control Procedure for a class of Chess endgames', Neural, Parallel and Scientific Computations, 2007.
- Z. Retchkiman, 'A Combinatorial Game Mathematical Strategy Planning Procedure for a class of Chess endgames', International Mathematical Forum, 2007
- Z. Retchkiman, 'Modeling and Analysis of the Metro-bus Public Transport System in Mexico City using Timed Event Petri Nets and Max-Plus Algebra', Nonlinear Analysis: Hybrid Systems, 2008.
- Z. Retchkiman, A Generalized Eigenmode Algorithm for Reducible Regular Matrices over the Max-Plus Algebra, International Mathematical Forum, 2008.
- R. Mercado and Z. Retchkiman, A Linguistic Geometry Model for an Arimaa Bot, Neural, Parallel and Scientific Computations, 2009.
- Z. Retchkiman, A Mixed Lyapunov-Max-Plus Algebra Approach to the Stability Problem for a two Species Ecosystem Modeled with Timed Petri Nets, International Mathematical Forum journal, 2010.

- Z. Retckiman, Timetable Design for a Helicopter Maintenance Process using Timed Event Petri Nets and Max-Plus Algebra, Neural, Parallel and Scientific Computations, 2010.

5 Scholarships.

- Weizmann Institute of Science, Israel, (1986-1988).
- Sc.D studies. DAAD (Deutscher Akademischer Austauschdienst) Germany, (1989-1990).
- Sc.D studies. CONACYT (Consejo Nacional de Ciencia y Tecnologia), Mexico, (1990-1993).
- Postdoctoral fellowship, Polytechnic University of Brooklyn, NY, USA, (1994-1995).

6 Society Memberships.

- American Mathematical Society, (1997- present).
- Mexican National Research System, level II.
- Mathematical Association of America (2004-present)

7 Languages.

English, (Good).

Hebrew, (Good).

German, (Basic).

Danish, (Basic)