

CURRICULUM VITAE & PUBLICATIONS LIST

Vera Michel Zeidan

ADDRESS: Department of Mathematics
Michigan State University
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LANGUAGES: English, Arabic, French, Italian, German, Russian, and Spanish

RESEARCH INTERESTS:

Calculus of Variations; Optimal Control Theory: Continuous and Discrete;
Nonsmooth Analysis; Differential Equations; Time Scales; Evolution Differential
Inclusion; Variational Analysis; Applied Functional Analysis; Convex Analysis.

EDUCATION:

B.Sc. 1976 (Mathematics) Ecole Normale Superieure, Beirut, Lebanon
B.Sc. 1976 (Physics) Faculté des Sciences, Beirut, Lebanon
M.A. 1978 (Mathematics) Dalhousie University, Halifax, Canada
Ph.D. 1982 (Mathematics) University of British Columbia, Canada

Theses presented for graduate degrees:

M.A.: Continuous State Dynamic Programming (Supervisor: Professor W.R.S.
Sutherland), Dalhousie University, Canada
Ph.D.: Sufficient Conditions for the Generalized Problem of Bolza (Supervisor:
Professor F.H. Clarke), University of British Columbia, Canada

AWARDS:

The Frame Teaching Award at MSU (April, 2002)
The Frame Teaching Award at MSU (May, 1990)
Postdoctoral Fellowship, Natural Sciences and Engineering
Research Council of Canada (1982-1984)
University Fellowship, University of British Columbia (1980-1982)
University Fellowship, Dalhousie University (1977-1978)

EMPLOYMENT:

Dates	Position	Department	Institution
1996-present	Full Professor	Mathematics	Michigan State Univ.
Fall 2014	Sabbatical	Mathematics	Masaryk Univ., CZ
Spring 2007	Sabbatical	Mathematics	Univ. of Debrecen, HU
Fall 1998	Sabbatical	Engineering	Univ. of Porto, PO
1989-1996	Associate Professor (Tenured)	Mathematics	Michigan State Univ.
1989-1994	Associate Professor (Tenured)	Applied Math.	Univ. of Waterloo
1986-1988	Assistant Professor (Tenure-Track)	Applied Math.	Univ. of Waterloo
1983-1987	Assistant Professor (Tenure-Track)	Mathematics	Univ. of Alberta
1982-1983	Postdoctoral Fellow	CRM	Univ. de Montréal

FUNDED EXTENDED VISITING POSITIONS:

Dates	Position	Department	Institution
May 2018	Visiting Professor	LSMS/CSMath	Lebanese American Univ
July 2017	Visiting Professor	Mathematics	Masaryk University, CZ
Spring 2015	Visiting Professor	Mathematics	Masaryk University, CZ
June 2010	Visiting Professor	Mathematics	Masaryk University, CZ
Feb-Aug 2010	Visiting Professor	CS and Math	Lebanese American Univ
April 2009	Visiting Professor	Mathematics	University of Porto, PO
August 2008	Visiting Professor	Mathematics	Kossuth Institute, HU
May 2007	Visiting Professor	Mathematics	Masaryk University, CZ
March 2007	Visiting Professor	Mathematics	Kossuth Institute, HU
April-May 2005	Visiting Professor	Mathematics	Masaryk University, CZ
March 2005	Visiting Professor	Mathematics	Kossuth Institute, HU
April 2001	Visiting Professor	Mathematics	Masaryk University, CZ
March 2001	Visiting Professor	Mathematics	Kossuth Institute, CZ
Nov.-Dec., 1998	Visiting Professor	Mathematics	Kossuth Institute, CZ
Oct.-Nov., 1998	Visiting Professor	Engineering	Univ. of Porto, PO
Sept.-Oct., 1998	Visiting Professor	Mathematics	Univ. of Rabat, MO
June-Aug., 1989	Visiting Professor	Sys. & CS	Univ. of Florence, IT
June-Aug., 1988	Visiting Professor	Sys. & CS.	Univ. of Florence, IT
May-July 1987	Visiting Professor	Sys. & CS.	Univ. of Florence, IT
May-July 1985	Visiting Professor	Sys. & CS.	Univ. of Florence, IT
June-July 1982	Visiting Professor	Mathematics	Haagen, Germany

RESEARCH GRANT RECORD:

- 1/2019-12/2021 *Czech Science Foundation* Grant # GA19-01246S
(with R. Simon Hilscher PI)
- July-August 2017 SFTF Grant
- 1/2016-12/2018 *Czech Science Foundation* Grant # GA16-00611S
(with R. Simon Hilscher PI)

- 1/2010- 12/2014 *Czech Science Foundation Grant # GAP201/10/1032*
(with Ondrej Dosly PI)
- 2007-2012 NSF Individual Grant # DMS-0707789
- 2003-2007 NSF Individual Grant # DMS-0306260
- 2000-2003 NSF Individual Grant # DMS-0072598
- June 1999 Special Foreign Travel Fund Award
- 1994-1996 NSF Individual Grant # DMS-9404591
- June 1995 Special Foreign Travel Fund Award
- Individual Research Grants funded by NSERC of Canada during:

1993-1994	1992-1993	1991-1992
1990-1991	1989-1990	1988-1989
1987-1988	1986-1987	1985-1986
1984-1985	1983-1984	
- Summer 1990 from Michigan State University
- Summer 1989 from National Research Council of Italy
- Summer 1988 from National Research Council of Italy
- Summer 1987 from National Research Council of Italy

EDITORIAL POSITIONS:

- 2019 - , Associate Editor, *Canadian Journal of Applied Mathematics*
- 2016 - , Associate Editor, *ESAIM:Control, Optimization, Calculus of Variations*
- 2013 - 2015, Associate Editor, *ESAIM:Control, Optimization, Calculus of Variations*
- 2011 - , Associate Editor, *Journal of Mathematical and Computational Science*
- 2006 - , Associate Editor, *Numerical Functional Analysis and Optimization*
- 2006 - , Associate Editor, *The Advances in Dynamical Systems and Applications*
- 2001 - Dec. 2003, Associate Editor, *SIAM Journal on Control and Optimization*
- 1998 -Dec. 2000, Associate Editor, *SIAM Journal on Control and Optimization*

INVITED TALKS AT UNIVERSITIES:

- Massaryk University, Brno, CZ, July 2017
- Massaryk University, Brno, CZ, June 2015 (INNOLEC mini-Course Series)
- Massaryk University, Brno, CZ, June 2010 (INNOLEC mini-course series)
- American University of Beirut, Lebanon, August 2010
- University of Nebraska, Lincoln, (2009)
- Masaryk University, Brno', Czech Republic (2007)
- Masaryk University, Brno', Czech Republic (2005)
- Kossuth University, Debrecen, Hungary (2005)
- Michigan State University (October 2001) (3 talks)
- Kossuth University, Debrecen, Hungary (2001)
- Michigan State University, (1999)
- University of Brno', Czech Republic (1998)
- Kossuth University, Hungary (1998)
- Universidade Do Porto, Portugal (1998)

Université de Rabat, Morocco (1998)
 University of Debrecen, Hungary (1995)
 University of Waterloo (1991)
 Florida Institute of Technology (1990)
 Michigan State University, 3 talks (1990)
 University of Florence (July 1989)
 Michigan State University (May 1989)
 University of Debrecen, Hungary (June 1988)
 Concordia University, Montreal, Colloquium (May 1988)
 Northeastern University, Boston (April 1988)
 University of British Columbia (March 1988)
 Bremen University, Germany (June 1987)
 University of Ottawa (March 1987)
 University of Rome, Italy (March 1987)
 Tecnopolis, Bari, Italy (December 1986)
 University of Lincoln, Nebraska, Colloquium (November 1986)
 University of Waterloo (April 1986)
 University of Modena, Italy (1985)
 University of Florence, Italy, series of 3 lectures (1985)
 Sherbrooke University (January 1983)
 The University of Quebec in Montreal (November 1982)
 Dalhousie University (November 1982)
 University of Montreal (September 1982)
 Bremen University, Germany (August 1982)
 York University (March 1982)
 University of Calgary (March 1982)
 University of Alberta (February 1982)
 The University of British Columbia (March 1981)
 Fernuniversitat, Germany (February 1981)

INVITED SPEAKER AT CONFERENCES:

Keynote speaker, The Lebanese Society for the Mathematical Sciences, (May 2018)
 Midwest Optimization Meeting, Oakland University, (October 2017)
 EQUADIFF 2017, Bratislava University, Slovakia, (July 2017)
 EQUADIFF, Brno, Czech Republic (December 2009)
 Winter Meeting of the Canadian Mathematical Society, Windsor (December 2009)
 Nonsmooth Analysis, Control Theory and Differential Equations, Rome (June 2009)
 Workshop in Control, Nonsmooth Analysis and Optimization, Porto, (May 2009)
 AMS Central meeting, in Kalamazoo, (October 2008)
 “50 Years of Optimal Control” in Bedlewo, Poland (September 2008)
 DE’s and Topology, 100th anniversary of Pontryagin, Moscow, Russia (June 2008)
 PLENARY speaker in IC on DE and Applications, Istanbul, Turkey, (July 2008)

SIAM Annual Meeting, San Fransisco, (June 2007)
 The 8th Midwest Optimization Meeting, Oxford, Ohio, (October 2006)
 Geometric and Nonsmooth Control, Rome, Italy (June 2006)
 Midwest Optimization Conference 05, Western Michigan, Kalamazoo,(September 05)
 Midwest Optimization Conference 04, Wayne State, Detroit, (September 04)
 Mathematical Control Theory 03, Baton Rouge, Louisiana, (April 2003)
 The 41st IEEE Conference on Decision and Control, Las Vegas (December 2002)
 The 1st Joint International AMS-UMI Meeting, Italy (June 2002)
 Midwest Optimization Conference, Ann Arbor (September 2002)
 AMS and SIAM Annual Meeting, San Diego (July 2001)
 Midwest Optimization Conference, Kalamazoo (October 2001)
 The International Congress on Nonlinear Analysis, Italy (July 2000)
 The International Workshop on Nonlinear Analysis and Control Theory, Porto (June 1999)
 Midwest Optimization Conference, Toledo (August 1999)
 The International Federation of Information Processing, Detroit (July 1997)
 The AMS Central Section Meeting, Detroit (May 1997)
 Third Congress on Industrial and Applied Mathematics, Hamburg, Germany (1995)
 International Workshop: “Nonsmooth Analysis and Its Applications”, Pau-France, 1995
 The 33rd IEEE Conference on Decision and Control, Orlando (1994)
 The 15th Symposium of Mathematical Programming, U. of M. (1994)
 SIAM Annual Meeting, San Diego (1994)
 The 32nd IEEE Conference on Decision and Control, San Antonio (1993)
 International Workshop on Nonsmooth Analysis, IMA, Minnesota (1993)
 The International Congress of Nonlinear Analysts, Florida (1992)
 The 29th IEEE Conference on Decision and Control (1990)
 Controls in the 90’s, SIAM Conference, San Francisco (1989)
 Analisi Funzionali, Cetraro, Italy (1989)
 The 8th International Conference on Analysis and Optimization of Systems (June 1988)
 The 25th IEEE Conference on Decision and Control, Greece (December 1986)
 Workshop on Parametric and Nonsmooth Optimization, CRM, Montreal (February 1986)
 International Conference on Optimization and Related Fields, Erice, Italy (September 1984)
 The 22nd IEEE Conference on Decision and Control, Texas (December 1983)
 The Canadian Mathematical Society Summer Meeting, Vancouver (June 1983)

RESEARCH REVIEWER:

NSF- Panelist for The Analysis Division
 External Reviewer for Promotion and Tenure
 External Reviewer for Promotion to Full Professor

REFEREE FOR:

Transactions of the American Mathematical Society
 Journal of Nonlinear Analysis: Theory, Methods and Applications
 ESAIM:COCV
 Journal of Mathematical Analysis and Applications
 SIAM Journal on Control and Optimization
 SIAM Journal on Optimization
 Set-Valued Analysis
 Aequationes Mathematicae

SIAM Review
 Journal of Difference equations and Applications
 Control Letters
 International Journal on Control
 Journal of the Australian Mathematical Society
 International Journal of Mathematics and Mathematical Sciences
 Optimization Journal
 IEEE Transactions on Automatic Control
 Proceedings of IEEE on Decision and Control
 Journal of Optimization Theory and Applications
 Journal of Applied Mathematics and Optimization
 Proceedings of the International Conference on Analysis and Optimization of System
 Mathematics of Control, Signals, and Systems
 Control and Cybernetics
 Mathematical Reviews
 Books published by Chapman and Hall and Mathematical Reviews
 Proposals for National Science Foundation, USA
 Proposals for Natural Sciences and Engineering Research Council of Canada
 Proposals for National Research Council in Italy

CONFERENCE ORGANIZATION:

- Organizer of the Midwest Optimization Meeting, October 2016.
- Organizer of the “Nonsmooth Analysis Seminar” for 2005 and 2006.
- Organizer of the “Nonsmooth Analysis Seminar” for 2001 and 2002.
- Organizer of *two* sessions in the International Federation of Industrial Process (IFIP) (1997).
- Organizer of the “Optimal Control Theory Seminar” in 1990.

HOSTED VISITORS:

Throughout my career, I have hosted numerous visitors and prominent people in my Research Field, e.g., Francis Clarke, Jonathan Borwein, Alex Ioffe, Asen Dontchev, Jack Warga, Boris Mordukhovich, Richard Vinter etc.

FULBRIGHT FELLOW MENTORING:

Dr. H. Saoud, Lebanese University, Fanar, Lebanon, 2016.

POSTDOCTORAL SUPERVISION:

R. Gupta from Ann Arbor and IMA, 2017-2018.
 R. Hilscher from the Czech Republic, 2000-2003.
 K. Shamseddine From Department of Physics at MSU, 2001-2002.

SUPERVISOR and EXAMINER of GRADUATE STUDENTS:

A. Condori in Analysis 2005-2009
 C. Brooks in Applied Mathematics, 2003-2007
 L. Vasiljevic in Industrial Mathematics, 2003-2004
 S. Nudehi in the Engineering school, 2002-2004

Hs. Kay in Electrical and Computer Engineering, 2001-2003
 A. Nair in the Business school, 2002-2006
 L. Freidovich in the Mathematics Department, 2000-2005
 K. Shamseddine in the Physics and Mathematics Departments, 1996-1999
 I. Baiyasi in the Civil Engineering Department, 1997-2000
 Marc Chamberland, Department of Applied Mathematics, University of Waterloo, 1990
 David Orrell, Department of Mathematics, University of Alberta, 1984-1985

EXTERNAL PH.D EXAMINER:

Audrey Ledoux, Ecole Polytechnique, Paris, France
 Pairwat Pacheenburawana, Steklov Institute in Russia and Western Michigan

UNDER-GRADUATE TEACHING: I have taught numerous courses such as:
 Calculus I–IV for Engineering Students; Calculus I for Biology and Business Students; Calculus I–IV for Honor Mathematics Students; Linear Programming; Nonlinear Programming; Analysis I; Analysis II; Algebra; Linear Algebra; Advanced Differential Equations; Optimization and Algorithms; and Optimal Control Theory.

GRADUATE COURSE DEVELOPMENT: I have developed *four* Graduate Courses: “Mathematical Optimal Control”; “Non-smooth Analysis”; “Boundary Value Problems I”; and “Boundary Value Problems II”. This includes lecture notes, full sets of weekly assignments, midterms, and finals.

SERVICE AT MSU:

Departmental Committees:

Dates	Committee Name
• Spring 2019	Strategic Planning for the next 5 years
• Spring 2019	Diversity, Equity, and Inclusiveness(DEI) Committee
• Spring 2019	Operations and Budget Committee
• Spring 2019	DEI Officer for the Advisory Committee
• Fall 2018	Chair Review Committee
• 2018 – 2019	Advisory Committee
• 2017 – 2018	The Personnel Committee
• Fall 2017	Promotion Officer for Dr. Uriarte-Tuero’s application
• Fall 2017	In-Class Observer and Teaching Evaluator for Dr. Kitagawa
• Spring 2017	Course Supervisor for Math 132, Calculus I for Engineers
• 2016 – 2017	The Undergraduate Studies Committee
• Fall 2016	In-Class Observer and Teaching evaluator for Dr. Wong
• 2015 – 2016	The Personnel Committee
• Fall 2015	Promotion Officer for Dr. Jeffrey Schenker’s application
• Fall 2015	In-Class Observer and Teaching Evaluator for Drs. Schenker and Wang
• Fall 2012	Teaching Mentor for Math 133 (Calculus II) Instructors
• Fall 2012	The Chair Search Committee
• Fall 2011	French Qualifying Exam preparer and grader
• 2009 – 2010	Grading Coordinator for all sections of Math 132

- 2009 – 2010 Exam writer for Math 132
- 2008 – 2009 The Personnel Committee
- 2007 – 2008 The Hiring Committee
- 2006 – 2007 The Library Committee
- 2006 – 2007 Mentor for Math 132 Instructors
- Fall 2006 Coordinator for MATH 132
- 2005 – 2006 The Personnel Committee
- 2005 – 2006 The Library Committee
- Spring 2006 MATH 132/133 Committee
- Fall 2005 MATH 132/133 Committee
- 2005 – 2006 Mentor for MATH 132 Instructors
- 2004 – 2005 The Library Committee
- 2004 – 2005 The Personnel Committee
- 2003 – 2004 Mathematics and Engineering Liason Committee
- 2003 – 2004 Chair of The Frame Teaching Award Committee
- 2003 – 2004 The Frame Teaching Award Committee
- Spring 2003 MATH 132/133 Committee
- Fall 2002 MATH 132/133 Committee
- 2001 – 2002 Phillips Lecture Series Committee
- 2000 – 2001 The Advisory Committee
- 2000 – 2001 The Chair Search Committee
- 1999 – 2000 The Personnel Committee
- 1997 – 1998 The Applied Mathematics Committee
- 1996 – 1997 The Undergraduate Committee
- 1994 – 1996 The Graduate Committee
- 1993 – 1994 The Frame Teaching Award
- 1992 – 1994 The Chair Selection Committee
- 1992 – 1993 The Hiring Committee

College and University Committees:

- 2014 – 2016 Natural Science Faculty Advisory Council
- 1996 – 1998 The University Graduate Council Committee
- 1994 – 1998 The University Curriculum Committee
- 1995 – 1996 Chair of the University Undergraduate Studies Curriculum Committee
- 1995 – 1996 The Agenda Committee of the University Graduate Council
- 1994 – 1996 The University Graduate Council Committee

FRAME AWARD COMMITTEE SET-UP:

As the Chair of the Frame Award Committee, I established a system to facilitate the work of the future Committee members. This comprises setting the procedures and standardized letters such as nomination, informing the nominees, solicitation of information from the nominees who made the short list, letter of rejection, etc. All this is saved in the “framecom account”.

EXCHANGE PROGRAM SET-UP:

In 1995 I established with Dr. Berz in the Physics Department, an Exchange Program with “*Studienstiftung*”, a German organization that screens and supports the best students in Germany. We received several Undergraduate and Graduate students through this exchange program since its birth.

PUBLICATION LIST**Vera Michel Zeidan****Papers in Preparation**

- H. Saoud, and V. Zeidan, Optimal control over perturbed evolution equation generated by the subdifferential operator.
- V. Zeidan, The positivity of a discrete linear - quadratic optimal control is equivalent to the positivity of its Diagonal.
- V. Zeidan, New Picone identity for Nondiagonal Quadratic Functionals Over Time Scale.
- Zs. Páles and V. Zeidan, Application of Generalized Jacobians into optimization.
- V. Zeidan, Coupled intervals for abnormal time scale variational problems.
- Zs. Páles and V. Zeidan, The Generalized Hessian in Infinite Dimension.

Refereed Papers in Press or Published

- (1) R. Simon Hilscher, and V. Zeidan, *Sufficiency and sensitivity for nonlinear optimal control problems on time scales via coercivity*, *ESAIM:Control, Optimization, and Calculus of Variations*, 24 (2018) 1705-1734.
- (2) Adam L. Bruce, Vera M. Zeidan, and Dennis S. Bernstein, *Eigendecomposition of Finite-Dimensional Projections of the Koopman Operator*, *American Control Conference (2019) (to appear)*.
- (3) V. Zeidan, *Constrained linear-quadratic control problems on time scales and weak normality*, *Dynamic Systems and Applications*, 26 (2017) 627-662.
- (4) R. Simon Hilscher, and V. Zeidan, *Oscillation theorems and Rayleigh principle for linear Hamiltonian and symplectic systems with general boundary conditions*, *Applied Mathematics and Computation*, 218 (2012) 8309–8328.
- (5) R. Simon Hilscher, and V. Zeidan, *Hamilton–Jacobi theory over time scales and applications to linear-quadratic problems*, *Nonlinear Analysis*, 75 (2012) 932-950.
- (6) R. Simon Hilscher, and V. Zeidan, *First order conditions for generalized variational problems over time scales*, *Computers and Mathematics with Applications* 62 (2011) 3490-3503.
- (7) R. Simon Hilscher, and V. Zeidan, *Rayleigh principle for time scale symplectic systems and applications*, *Electronic Journal of Qualitative Theory of Differential Equations*, no. 83, (2011), 1-26.
- (8) Zs. Páles and V. Zeidan, *The V-Jacobian for Lipschitz maps in infinite dimensions*, *Discrete and Continuous Dynamical Systems - Serie A*, 29 (2011), no. 2, 623-646.
- (9) W.Kratz, R. Simon Hilscher, and V. Zeidan, *Eigenvalue and Oscillation Theorems for time scale symplectic systems*, *Int. J. Dynamical Systems and Differential Equations*, no. 1-2, (2011), 84-131.
- (10) Zs. Páles and V. Zeidan, *Co-Jacobian for Lipschitz maps*, *Set-Valued Var. Anal.* 18 (2010), no. 1, 57-78.
- (11) R. Hilscher and V. Zeidan, *Symplectic structure of Jacobi systems on time scales*, *Int. J. Difference Equ.* 5 (2010), no. 1, 55–81.
- (12) R. Hilscher and V. Zeidan, *Nabla time scale symplectic systems and related quadratic functionals*, *Differential Equations Dynam. Systems*, 18 (2010), no. 1-2, 163-198.
- (13) R. Hilscher and V. Zeidan, *Reid roundabout theorems for time scale symplectic systems*, *Discrete dynamics and difference equations*, (2010), 267-288.

- (14) R. Simon Hilscher and V. Zeidan, *Symmetric three-term recurrence equations and their symplectic structure*, *Adv. Difference Equ.*, Art. ID 626942, (2010)17 pp.
- (15) R. Hilscher and V. Zeidan, *Picone type identities and definiteness of quadratic functionals on time scales*, *Applied Math. and Computation*, 215 (2009), no. 7, 2425–2437.
- (16) R. Hilscher and V. Zeidan, *Multiplicities of focal points for discrete symplectic systems: revisited*, *J. Difference Eq. Appl.*, 15 (2009), no. 10, 1001–1010.
- (17) Zs. Páles and V. Zeidan, *The Core of the Infinite Dimensional Generalized Jacobian*, *Journal of Convex Analysis*, 16 (2009), no. 2, 321–349.
- (18) R. Hilscher and V. Zeidan, *Weak maximum principle and accessory problem for control problems on time scales*, *Nonlinear Analysis*, 70(2009), 3209–3226.
- (19) R. Hilscher, W. Kratz and V. Zeidan, *Differentiation of solutions of dynamic equations on time scales with respect to parameters*, *Advances in Dynamical Systems and Applications*, 4 (2009), 35–54.
- (20) R. Hilscher and V. Zeidan, *Oscillation results for time scale symplectic systems*, *Difference equations and applications*, (2009), 203–210.
- (21) V. Zeidan, *Continuous versus discrete nonlinear optimal control problems*, *Difference equations and applications*, (2009), 73–93.
- (22) Zs. Páles and V. Zeidan, *Infinite Dimensional Generalized Jacobian: Properties and Calculus Rules*, *J. Math. Anal. Appl.*, 344(2008), 55–75.
- (23) R. Hilscher and V. Zeidan, *Riccati equations for abnormal time scale quadratic functionals*, *Journal of Differential Equations*, 244(2008), 1410–1447.
- (24) R. Hilscher and V. Zeidan, *Time scale embedding theorem and coercivity of quadratic functionals*, *Analysis*, 28(2008), 1–28.
- (25) R. Hilscher and V. Zeidan, *Applications of time scale symplectic systems without normality*, *J. Math. Anal. Appl.*, 340(2008), 451–465.
- (26) Zs. Páles and V. Zeidan, *Generalized Jacobian for Functions with Infinite Dimensional Range and Domain*, *Set-Valued Analysis*, 15(2007), 331–375.
- (27) R. Hilscher and V. Zeidan, *Extension of discrete LQR problem to symplectic systems*, *Int. J. Difference Eq.*, 2(2007), 197–208.
- (28) Zs. Páles and V. Zeidan, *Infinite dimensional Clarke generalized Jacobian*, *Journal of Convex Analysis*, 14(2007), 433–454.
- (29) R. Hilscher and V. Zeidan, *Legendre, Jacobi, and Riccati type conditions for a time scale variational problem with application*, *Dynam. Systems Appl.*, 16(2007), 451–480.
- (30) Zs. Páles and V. Zeidan, *First and Second-Order Optimality Conditions for Strong Local Minimum in Control Problems with Pure State Constraints*, *NonLinear Analysis*, 67(2007), 2506–2526.
- (31) R. Hilscher and V. Zeidan, *Time scale symplectic systems without normality*, *J. Differential Equations*, 230 (2006), no. 1, 140–173.
- (32) R. Hilscher and V. Zeidan, *Coupled intervals for discrete symplectic systems*, *Linear Algebra Appl.*, 419 (2006), no. 2–3, 750–764.
- (33) R. Hilscher and V. Zeidan, *Solvability of the discrete LQR-problem under minimal assumptions*, *Proceedings of the Ninth International Conference on Difference Equations and Applications*, L.Allen, B.Aulbach, S.Elaydi, and R.Sacker, editors, *World Scientific Publishing Co., London*, (2005), 273–282.
- (34) R. Hilscher and V. Zeidan, *Nonnegativity and positivity of a quadratic functional in the discrete calculus of variations*, *J. Difference Eq. Appl.* **11** (2005), no. 2, 857–875.
- (35) Zs. Páles and V. Zeidan, *Strong local optimality conditions for state constrained control problems*, *J. Global Optim.* **28** (2004), no. 3–4, 363–377.

- (36) Zs. Páles and V. Zeidan, Critical and Critical tangent cones in Optimization Problems, *Set-Valued Analysis*, **12** (2004), no. 1-2, 241–258.
- (37) R. Hilscher and V. Zeidan, Discrete quadratic functionals with jointly varying endpoints via separable endpoints, In: “Proceedings of the Sixth International Conference on Difference Equations and Applications” (Augsburg, 2001), B. Aulbach, S. Elaydi, and G. Ladas, editors. Taylor and Francis. CRC, Boca Raton, FL, (2004), 461–470
- (38) R. Hilscher and V. Zeidan, “Coupled intervals in the discrete optimal control, *J. Difference Equ. Appl.* **10** (2004), no. 2, 151–186.
- (39) R. Hilscher and V. Zeidan, Equivalent conditions to the nonnegativity of a quadratic functional in discrete optimal control, *Math. Nachr.*, **266** (2004), 48–59.
- (40) R. Hilscher and V. Zeidan, Calculus of variations on time scales: weak local piecewise C_{rd}^1 solutions with variable endpoints, *J. Math. Anal. Appl.*, **289** (2004), no. 1, 143–166.
- (41) Zs. Páles and V. Zeidan, Optimal control problems with set-valued control and state constraints, *SIAM Journal on Optimization* **14** (2003), no. 2, 334–358.
- (42) O. Došlý, R. Hilscher and V. Zeidan, Nonnegativity of discrete quadratic functionals corresponding to symplectic difference systems, *Linear Algebra Appl.* **289** (2003), 21–44.
- (43) K. Shamseddine and V. Zeidan, Constrained second order optimization on non-archimedean fields, *Indagationes Mathematicae*, **14** (2003), no. 1, 81–101.
- (44) R. Hilscher and V. Zeidan, Symplectic difference systems: variable stepsize discretization and discrete quadratic functionals, *Linear Algebra Appl.*, **367** (2003), 67–104.
- (45) R. Hilscher and V. Zeidan, A remark on discrete quadratic functionals with separable endpoints, *Rocky Mountain J. Math.*, **33** (2003), no. 4, 1337–1351.
- (46) R. Hilscher and V. Zeidan, Nonnegativity of a discrete quadratic functional in terms of the (strengthened) Legendre and Jacobi conditions, In: Advances in Difference Equations IV, R. P. Agarwal, editor. *Comput. Math. Appl.*, **45** (2003), no. 6-9, 1369–1383.
- (47) Zs. Páles and V. Zeidan, Strong local optimality conditions for control problems with mixed state-control constraints, *Proceedings of the 41st Conference on Decision and Control*, Las Vegas, Nevada, (2002), 4738–3443.
- (48) R. Hilscher and V. Zeidan, Coupled intervals in the discrete calculus of variations: necessity and sufficiency, *J. Math. Anal. Appl.* **276** (2002), no. 1, 396–421.
- (49) R. Hilscher and V. Zeidan, Discrete optimal control: second order optimality conditions, *J. Difference Equ. Appl.* **8** (2002), no. 10, 875–896.
- (50) R. Hilscher and V. Zeidan, Second order sufficiency criteria for a discrete optimal control problem, *J. Difference Equ. Appl.* **8** (2002), no. 6, 573–602.
- (51) K. Shamseddine and V. Zeidan, “One dimensional optimization on non-archimedean fields,” *J. Nonlinear Convex Anal.*, **2** (2001), 351–361.
- (52) V. Zeidan, New second-order optimality conditions for variational problems with C^2 -Hamiltonians, *SIAM Journal on Control and Optimization*, **40** (2001), 577–609.
- (53) Zs. Páles and V. Zeidan, The critical tangent cone in second-order conditions for optimal control, *World Congress of Nonlinear Analysts 2000*, (Proceedings of the 2nd World Congress of Nonlinear Analysts, Catania, Italy, 2000), (Ed. V. Lakshmikantham), *Nonlinear Anal.* **47** (2001), 1149–1161.
- (54) H. Kawasaki and V. Zeidan, Conjugate points for variational problems with equality and inequality state constraints, *SIAM Journal on Control and Optimization*, **39** (2000), 433–456.
- (55) Zs. Páles and V. Zeidan, Optimum Problems with measurable set-valued constraints, *SIAM Journal on Optimization*, **11** (2000), 426–443.

- (56) R. Hilscher and V. Zeidan, Discrete optimal control: The accessory problem and necessary optimality conditions, *Journal of Mathematical Analysis and Applications*, **243** (2000), 429-452.
- (57) Zs. Páles and V. Zeidan, Characterization of L^1 -closed decomposable sets in L^∞ , *Journal of Mathematical Analysis and Applications*, **238** (1999), 491-515.
- (58) Zs. Páles and V. Zeidan, Characterization of closed and open C -convex sets with nonempty interior in $C(T, \mathbb{R}^r)$, *ACTA SCI. MATH. Szeged.*, **65** (1999), 339-357.
- (59) V. Zeidan, Nonnegativity and Positivity of a quadratic functional, *Dynamic Systems and Applications*, **8** (1999), 571-588.
- (60) Zs. Páles and V. Zeidan, Characterization of L^1 -Closed Decomposable Sets in L^∞ , *System Modelling and Optimization*, (1999), 198-206.
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