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Degrees:

Ph.D., Electrical Engineering, Virginia Polytechnic Institute and State University, 1988.
M.S., Electrical Engineering, California Institute of Technology, 1984.
M.Eng.Sc., Electrical Engineering, University of New South Wales, Australia, 1983.
B.E., Electrical Engineering, University of New South Wales, Australia, 1980.
B.Sc., Mathematics, University of New South Wales, Australia, 1977.

Employment History:

Portland State University, Portland, Oregon.

Associate Professor of Electrical Engineering, Sept. 1994 - present.

Assistant Professor of Electrical Engineering, Sept. 1988 - Sept., 1994.

Virginia Polytechnic Institute and State University, Blacksburg, Virginia. 1985-1988.

Research Assistant. Analyzed the DC and AC characteristics of quasi-resonant DC-DC converters and DC-AC inverters.

California Institute of Technology, Pasadena. 1983-1985.

Teaching Assistant, for electronics design and circuit theory courses.

Sydney Technical College, Sydney, Australia.

Lecturer, (Part time) February 1983 - September 1983.

Newsound Electronics Pty. Ltd., Sydney, Australia. 1981-1983.

Design Engineer, switched-mode power supply design.

Medtel Pty. Ltd., Sydney, Australia. 1980-1981.

Design Engineer, ECG monitor design using the 8085 microprocessor.

Australian Iron and Steel (AIS), Pty.Ltd., Pt. Kembla, Australia. 1971-1973.

Electrical Engineer. Motor repair and rectification of circuit malfunctions.

Foreign Language:

Japanese

Teaching Experience:

Power electronics: senior and graduate levels.

Control theory: junior, senior and graduate levels.

Digital Signal Processing: graduate level.

Electronics: junior level.

Publications:

Journal:

Design and Control of an Alternative Buck PWM DC-to-DC Converter, *J. Simons and R. Tymerski*, Journal of Power and Energy Engineering, 2021, 9, 43-61. doi: 10.4236/jpee.2021.96004.

Exact Dynamic Modeling of PWM DC-to-DC Power Converters—Part I: Continuous Conduction Mode, *J. Simmons and R. Tymerski*, Journal of Power and Energy Engineering, 2021, 9, 26-47. doi: 10.4236/jpee.2021.95002.

Exact Dynamic Modeling of PWM DC-to-DC Power Converters—Part II: Discontinuous Conduction Mode, *J. Simmons and R. Tymerski*, Journal of Power and Energy Engineering, 2021, 9, 48-62. doi: 10.4236/jpee.2021.95003.

Differential Evolution Optimization of the Broken Wing Butterfly Option Strategy, *Munoz Constantine, D., Tymerski, R. and Greenwood, G.*, (2020) Technology and Investment, 11, 23-45. doi: 10.4236/ti.2020.113003.

Minimal Order Compensator Design for a DC-to-DC Power Converter, *S. Jacobs and R. Tymerski*, SSRG International Journal of Electrical and Electronics Engineering 7.6 (2020): 1-10. doi: 10.14445/23488379/IJEEE-V7I6P101.

Designing Equity Option Strategies Using Memetic Algorithms, *R. Tymerski and G. Greenwood*, Technology and Investment, (2018) 9, 179-202. doi: 10.4236/ti.2018.94013.

PECS - An Efficient Solution for Simulating Switched Networks with Nonlinear Elements, *D. Li, R.P.E. Tymerski and T. Ninomiya*, IEEE Transactions on Industrial Electronics, April 2001, pp. 367-376.

Comparison of Simulation Algorithms for Accelerated Determination of Periodic Steady State of Switched Networks, *D. Li and R.P.E. Tymerski*, IEEE Transactions on Industrial Electronics, Vol. 47, No. 6, December 2000, pp. 1278-1285.

Exact Input-to-Output Frequency Response of Time Interval Modulated Switched Networks, *R.P.E. Tymerski*, Accepted for publication in IEEE Transactions on Aerospace and Electronic Systems.

On the Efficacy of Sampled Data Modelling of Switched Networks, *R.P.E. Tymerski*, Accepted for publication in IEEE Transactions on Aerospace and Electronic Systems.

Generalized Approach for μ Synthesis of Robust Switching Regulators, *Gene Wallis and R.P.E. Tymerski*, IEEE Transactions on Aerospace and Electronic Systems, Vol. 36, No. 2, April 2000, pp. 422-431.

Analysis of Abnormal Phenomena Caused by Synchronous Rectifiers in a Paralleled Converter System, *T. Kohama, T. Ninomiya, M. Shoyama and R. Tymerski*, IEEE Transactions on Power Electronics, Vol. 15, No. 4, July 2000, pp. 670-680.

Chebyshev Series Integration Method for Transient Simulation of Switched Networks, *Duwang Li, Richard Tymerski and Tamotsu Ninomiya*, IEEE Transactions on Industrial Electronics, Vol. 47, No. 2, April, 2000, pp. 305-314.

Worst Case Stability Analysis of Switching Regulators Using the Structured Singular Value, *R.P.E. Tymerski*, IEEE Transactions on Power Electronics, Vol. 11, No. 5, Sept. 1996, pp. 723-730.

Simulation of Networks with Ideal Switches, *D. Skowronn, D. Li and R.P.E. Tymerski*, Special issue on Switched Mode DC Power Supplies of the International Journal of Electronics, Vol. 77, No.5, Nov., 1994, pp. 715-730.

Application of the Time Varying Transfer Function for Exact Small-Signal Analysis, *R.P.E. Tymerski*, IEEE Transactions on Power Electronics, March 1994, pp. 196-205.

Extended Ripple Analysis of PWM DC-to-DC Converters, *R.P.E. Tymerski and Duwang*

Li, IEEE Transactions on Power Electronics, October, 1993, pp. 588-595.

State Space Models for Current Programmed Pulse Width Modulated Converters, *R.P.E. Tymerski and Duwang Li*, IEEE Transactions on Power Electronics, July, 1993, pp. 271-278.

Volterra Series Modelling of Power Conversion Systems, *R.P.E. Tymerski*, IEEE Transactions on Power Electronics, October, 1991, pp. 712-718.

Frequency Analysis of Time-Interval-Modulated Switched Networks, *R.P.E. Tymerski*, Special Issue of the IEEE Transactions on Power Electronics on Modelling for Power Electronic Circuits and Systems, April, 1991, pp. 287-295.

Dc-to-ac Inversion Using Quasi-Resonant Techniques, *R.P.E. Tymerski, V. Vorperian and F.C. Lee*, IEEE Transactions on Power Electronics, Oct. 1989, pp. 381-390.

Nonlinear Modeling of the PWM Switch, *R.P.E. Tymerski, V. Vorperian, F.C. Lee and W.T. Baumann*, IEEE Transactions on Power Electronics, April 1989, pp. 225-233.

Equivalent Circuit Models for Resonant and PWM Switches, *V. Vorperian, R.P.E. Tymerski and F.C. Lee*, IEEE Transactions on Power Electronics, April 1989, pp. 205-214.

Generation and Classification of PWM DC-to-DC Converters, *R.P.E. Tymerski and V. Vorperian*, IEEE Transactions on Aerospace and Electronic Systems, Nov., 1988, pp. 743-754.

Modelling and Analysis of Current-Programmed DC/DC Converters, *R.P.E. Tymerski and K.C. Daly*, Journal of Electrical and Electronics Engineering, Australia, Vol. 5, No. 1, March 1985, pp. 85-91.

Conference:

A Game-Theoretical Approach for Designing Market Trading Strategies, *G. Greenwood and R. Tymerski*, IEEE Symposium on Computational Intelligence and Games (CIG'08), Perth, Australia, December 2008, pp. 316-322.

PECS - Power Electronics Circuit Simulator, *Duwang Li, R. Tymerski, and T. Ninomiya*, IEEE Workshop on Computers in Power Electronics (COMPEL '00), Blacksburg, Virginia, July, 2000, pp. 159-165.

PECS - An Efficacious Solution for Simulating Switched Networks with Nonlinear Elements, *Duwang Li, R. Tymerski, and T. Ninomiya*, IEEE Power Electronics Specialists Conference (PESC '00), Galway, Ireland, June, 2000, pp. 274-279.

High-Precision Constant-Current Power Supply by ZVS-PWM-Controlled Parallel-Resonant Converter, *T. Hashimoto, T. Ninomiya and R. Tymerski*, IPEC 2000, Tokyo, April 2000, pp. 85-89.

ZVS-PWM-Controlled Parallel-Resonant Converter Applied to a Constant-Current Power Supply, *T. Hashimoto, T. Ninomiya, H. Tanaka, R. Tymerski*, IEEE Power Electronics Specialists Conference (PESC '99), Charleston, South Carolina, June, 1999, pp. 275-280.

Parallel-Resonant Converter with ZVS-PWM Control, *T. Ninomiya, T. Hashimoto, H. Tanaka, M. Shoyama and R. Tymerski*, International Conference on Power Electronics (ICPE '98), Seoul, Korea, Oct., 26-31, 1998, pp. 85-90.

Analysis of Abnormal Phenomena Caused by Synchronous Rectifiers in a Paralleled Converter System, *T. Kohama, T. Ninomiya, M. Shoyama and R. Tymerski*, IEEE International Telecommunications Energy Conference (INTELEC '98), San Francisco, California, Oct., 1998, pp.

404-411.

A Generalized Approach for μ Synthesis of Robust Switching Regulators, *G. Wallis and R.P.E. Tymerski*, IEEE Power Electronics Specialists Conference (PESC '98), Fukuoka, Japan, May 1998, pp. 322-328.

A Comparison of Steady State Methods for Power Electronic Circuits, *D. Li and R.P.E. Tymerski*, IEEE Power Electronics Specialists Conference (PESC '98), Fukuoka, Japan, May 1998, pp. 1084-1090.

Exact Input-to-Output Frequency Response of Time Interval Modulated Switched Networks, *R.P.E. Tymerski*, IEEE Power Electronics Specialists Conference (PESC '97), St. Louis Missouri, June, 1997, pp. 428-434.

On the Efficacy of Sampled Data Modelling of Switched Networks, *R.P.E. Tymerski*, IEEE International Conference on Electronics, Circuits and Systems, Rodos, Greece, October 1996 and IEEE Power Electronics Society Fifth Workshop on Computers in Power Electronics, Portland, Oregon, August, 1996.

Time-Domain Simulation of Switched Networks Using the Chebychev Series, *D. Li and R.P.E. Tymerski*, IEEE Power Electronics Specialists Conference (PESC '95), Atlanta, Georgia, USA, June, 1995, pp. 823-829.

Worst Case Stability Analysis of Switching Regulators Using the Structured Singular Value, *R.P.E. Tymerski*, IEEE Power Electronics Specialists Conference (PESC '94), Taipei, Taiwan, R.O.C., June, 1994, pp. 281-288.

Sampled-Data Modelling of Switched Circuits, Revisited, *R.P.E. Tymerski*, IEEE Power Electronics Specialists Conference (PESC '93), Seattle, Washington, June, 1993, pp. 395-401.

A Fast Time Domain Simulator for Power Electronic Systems, *R.P.E. Tymerski*, IEEE Applied Power Electronics Conference, APEC '93, San Diego, Ca., March 1993, pp. 477-483.

Computer Aided Design Tool for PWM Converters, *Duwan Li and R.P.E. Tymerski*, IEEE Power Electronics Society Third Workshop on Computers in Power Electronics, University of California, Berkeley, August, 1992.

Object Oriented Design of a Power Electronics Circuit Simulator, *R.P.E. Tymerski, Duwan Li and Xiaojin Wang*, IEEE Power Electronics Society Third Workshop on Computers in Power Electronics, University of California, Berkeley, August, 1992.

State Space Models for Current Programmed Pulse Width Modulated Converters, *R.P.E. Tymerski and Duwan Li*, IEEE Power Electronics Specialists Conference (PESC '92), Toledo, Spain, June, 1992, pp. 337-344.

Application of the Time Varying Transfer Function for Exact Small-Signal Analysis, *R.P.E. Tymerski*, IEEE Power Electronics Specialists Conference (PESC '91), Boston, Massachusetts, June, 1991, pp. 80-87.

Frequency Analysis of Time-Interval-Modulated Switched Networks, *R.P.E. Tymerski*, IEEE Power Electronics Specialists Conference (PESC '90), San Antonio, Texas, June, 1990, pp. 355-362.

Volterra Series Modelling of Power Conversion Systems, *R.P.E. Tymerski*, IEEE Power Electronics Specialists Conference (PESC '90), San Antonio, Texas, June, 1990, pp. 786-791.

Dc-to-ac Inversion Using Quasi-Resonant Techniques, *R.P.E. Tymerski, V. Vorperian and F.C. Lee*, 32nd Midwest Symposium on Circuits and Systems, Urbana, Illinois, August, 1989, pp.

527-530.

Nonlinear Modelling of the PWM Switch, *R.P.E. Tymerski, V. Vorperian, F.C. Lee and W.T. Baumann*, IEEE Power Electronics Specialists Conference (PESC '88), Kyoto, Japan, April, 1988, pp. 968-976.

Finite Filter Inductance Effects on Quasi-Resonant Converter Performance, *R.P.E. Tymerski*, Conference Proceedings of the Virginia Power Electronics Center (VPEC), Virginia Polytechnic Institute and State University, Nov., 1986, pp. 24-36.

Generalized Resonant Switches, Part 1: Topologies; Part 2: Analysis and Circuit Models, *V. Vorperian, R.P.E. Tymerski, K.H. Liu, F.C. Lee*, Conference Proceedings of the Virginia Power Electronics Center (VPEC), Virginia Polytechnic Institute and State University, Nov., 1986, pp. 116-131.

Generation, Classification and Analysis of Switched-Mode DC-to-DC Converters by the Use of Converter Cells, *R.P.E. Tymerski and V. Vorperian*, IEEE International Telecommunications Energy Conference (INTELEC '86), Toronto, Canada, Oct., 1986, pp. 181-195.

Modelling and Analysis of Current-Programmed DC/DC Converters, *R.P.E. Tymerski and K.C. Daly*, 19th International Electronics Convention (IREECON International '83), Sydney, Australia, Sept., 1983.

Analysis and Design of Current-Programmed, Current-Fed, Push-Pull DC/DC Converters, *R.P.E. Tymerski and K.C. Daly*, Symposium on Electronics in Industry, University of New South Wales, Sydney, Australia, May, 1983.

Discrete Time Analysis and Control of Current-Programmed DC/DC Converters, *K.C. Daly, R.P.E. Tymerski and P. Hogwood*, 18th Universities' Power Engineering Conference, University of Surrey, Guilford, England, April, 1983.

The Design and Control of DC/DC Converters, *K.C. Daly and R.P.E. Tymerski*, Second Conference on Control Engineering, Newcastle, Australia, August, 1982, pp. 91-99.

Grants:

\$90,000 NSF Research Initiation Award

\$25,000 Cash support of Power Electronics Program at PSU, OECO Corporation

\$83,900 Various equipment and software grants from Intel, Tektronix, OECO and Boeing

11 month's salary, accommodation, travel, moving and medical expenses. JSPS Fellowship

Students:

M.S. Satish Shrestha, 2005.

Thesis title: "AC Small Signal Modeling of DC to DC Converters".

Ph.D. Duwang Li, 2000.

Thesis title: "Time-domain Computer Analysis Methods for Power Electronic Circuits".

M.S. Gene Wallis, 1998.

Thesis title: "A Generalized Approach for μ Synthesis of Robust Switching Regulators".

M.S. Anas Al-Rabadi, 1998.

Thesis title: "An Approach to Exact Modeling of the PWM Switch".

M.S. Fardin Ansari, 1994.

Thesis title: "Circuit Modeling of Switched Linear Networks".

M.S. Dietmar Skowronn, 1993.

Thesis title: "Simulation of Switched Linear Networks".

M.S. Weihe Niu, 1993.

Thesis title: "Exact Modeling of Time-Interval-Modulated Switched Networks".

Service to University, School and Department:

University Faculty Grievance Committee, 1998-1999 and 1999-2000.

CECS Academic Appeals Committee, 1991-1992 and 1992-1993.

CECS Awards Committee. 1995-1996.

Various Departmental Committees, each year.

Professional Activities:

JSPS (Japan Society for the Promotion of Science) Fellow at Kyushu University, Japan, May 1998-April 1999.

General Chairman of the 1996 IEEE Power Electronics Society Workshop on Computers in Power Electronics, PSU, August 11-14, 1996.

Program Committee Member of the IEEE Power Electronics Workshops on Computers in Power Electronics:

Virginia Polytechnic Institute and State University, July 2000.

Portland State University, Oregon, August 1996.

University of Quebec, Canada, August 1994.

University of California, Berkeley, August 1992.

Program Committee Member of the IEEE Power Electronics Specialists' Conferences (PESC):

PESC '98, Fukuoka, Japan, May, 1998

PESC '97, St. Louis, Missouri, USA, June, 1997

PESC '96, Baveno, Italy, June, 1996

PESC '95, Atlanta, Georgia, USA, June, 1995

PESC '94, Taipei, Taiwan, June, 1994

PESC '93, Seattle, Washington, USA, June, 1993

Topic chair (control theory), PESC '98

Session Chairman IEEE PESC '98, PESC '95, PESC '93 and PESC '90 (Power Electronics Specialists Conference).

Program Committee Member of the IEEE International Power Electronics Congress, CIEP '96, Cuernavaca, Mexico, October 14-17, 1996.

Member of IEEE Power Electronics Society Educational Activities Committee, 1992-present.

Paper reviewer:

IEEE Transactions on Power Electronics

IEEE Transactions on Industrial Electronics

IEEE Transactions on Aerospace and Electronic Systems

IEEE Transactions on Circuit and Systems

IEEE Transactions on Control System Technology

IEE Electronics Letters

IEEE Member, Member of Power Electronics Society, Member of Control Systems Society and Member of Education Society.

Visiting Researcher at Kyushu University, Fukuoka, Japan during sabbatical leave, Sept., 1994 – Aug., 1995 and Aug. – Sept., 1996, Aug. – Sept., 1997 and Aug. – Sept., 1999.

Visiting Researcher at University of Wollongong, Australia, May – July, 1999.

Invited seminar presentations:

Japan:

Kyushu University, Fukuoka, 1995 and 1999.

Yokohama National University, Yokohama, 1999.

Doshisha University, Kyoto, 1995.

Spain:

Polytechnic University of Catalonia, Barcelona, 1993.

Hong Kong:

Hong Kong Polytechnic University, Kowloon, 1995.

Australia:

University of Wollongong, Wollongong, 1999.

USA:

University of Washington, Seattle, 1993.

Purdue University, Indiana, 1993.

Oregon State University, Corvallis, 1993.