

CURRICULUM VITAE

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A. DEGREES

PhD in Electrical Engineering - University of KwaZulu-Natal (formerly University of Natal), Durban, South Africa, February 2002.

Dissertation Title: Adaptive Critic Based Neurocontrollers for Turbogenerators in a Multimachine Power System.

Advisor: Ron Harley, FIEEE, Duke Power Company Distinguished Professor, School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, USA.

MScEng in Electrical Engineering - University of KwaZulu-Natal (formerly University of Natal), Durban, South Africa, April 1999.

Thesis Title: An Implementation of a Continually Online Trained Artificial Neural Network Controller for a Turbogenerator.

Advisor: Ron Harley, FIEEE, Duke Power Company Distinguished Professor, School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, USA.

BEng (First Class) Honours degree in Electrical and Electronics Engineering - Abubakar Tafawa Balewa University, Nigeria, March 1994.

B. PROFESSIONAL EXPERIENCE

Academic/Research Experience:

1. September 2006 to Present - **Associate Professor**, Department of Electrical and Computer Engineering, Missouri University of Science and Technology (Missouri S & T), Rolla, MO, USA (formerly known as the University of Missouri, Rolla, USA). Duties: Advising PhD and MS students. Teaching at undergraduate and graduate levels, and carrying out publishable research in refereed journals. Courses taught include the following:
 - Adaptive Devices, Circuits and Systems – CpEng 301/EE 301/SysEng301 (SP07).
 - Adaptive Critic Designs – CpEng 458/EE458/SysEng 458 (SP09)
 - Computational Intelligence – CpEng 358/EE 367/ME 367/Sys Eng 367 (FS06/FS07/FS08).
 - Computational Intelligence Methods in Electric Power – EE301(*New course developed, SP09*)
 - Digital System Design – CpEng 213 (SP08).
 - Real-Time Power System Simulation – CpEng/EE 301 (*New course developed, FS08*).
2. May 2007 to August 2007 – **Visiting Researcher**, ABB AB Corporate Research Center, Vasteras, Sweden.
3. September 2004 to Present – **Director**, Real-Time Power and Intelligent Systems Laboratory, Missouri University of Science and Technology, Rolla, USA, <http://rtpis.mst.edu>.
4. May 2002 to August 2006, **Assistant Professor**, Department of Electrical and Computer Engineering, Missouri S & T, Rolla, MO, USA. Duties: Advising PhD and MS students. Teaching at undergraduate and graduate levels, and carrying out publishable research in refereed journals. Courses taught include the following:
 - Adaptive Critic Designs - CpEng 458/ EE 458/ME 458/Sys Eng 458 (*New course developed, FS04, SP06*).
 - Computational Intelligence - CpEng 358/EE 367/ME 301/Sys Eng 367 (*New course developed, SP04, FS05*).
 - Digital System Design - CpEng 213 (SP05).
 - Introduction to Computer Engineering - CpEng 111 (FS02, SP03, FS03).
5. May 2002 to December 2002 – **Visiting Lecturer**, Department of Electronic Engineering, Durban Institute of Technology (now known as the Durban University of Technology), Durban, South Africa. Advising graduate students.
6. May 2001 to April 2002 – **Senior Lecturer**, Department of Electronic Engineering, M L Sultan Technikon (now known as the Durban University of Technology), Durban, South Africa. I was involved in carrying out a number of tasks, including:
 - (i) Co-ordinator of the BTech degree programme (equivalent of Associate Chair for Undergraduate Studies).
 - (ii) Taught the following courses (Level IV is the equivalent of Senior Level):
 - Control systems IV
 - Digital signal processing IV
 - Engineering Mathematics IV
 - Micro-controllers Systems IV
 - Signal Processing IV

- System Simulation IV
 - Research Methodology IV.
- (iii) Advised BTech degree students for Industrial Project IV.
 - (iv) Advised MTech degree students.
 - (v) Developed the BTech curriculum (1996 and 1998)
 - (vi) Co-ordination of research activities within the Department of Electronic Engineering.
 - (vii) Member of the Faculty of Engineering Research Committee – Representing the Department of Electronic Engineering.
 - (viii) Member of the Technikon Conference Funding Committee – representing the Faculty of Engineering.
 - (ix) Member on the BTech/MTech Conferment of Status Panel for the Department of Electronic Engineering.
 - (x) Chair, Faculty of Engineering Research Committee – May 2001 to December 2001.
7. March 96 to May 2001 - **Lecturer**, Department of Electronic Engineering, M L Sultan Technikon, Durban, South Africa. Activities as listed in (i) to (ix) in (6) above.
 8. August 2000 to July 2001 - **Research Associate**, Applied Computational Intelligence Laboratory, Department of Electrical Engineering, Missouri S & T, Rolla, USA. During this period research studies on ‘Neurocontrol with Adaptive Critic Designs’ were carried out.
 9. January 1999 to August 1999 - **Research Associate**, Applied Computational Intelligence Laboratory, Department of Electrical Engineering, Texas Tech University, Lubbock, USA. During this period research studies on ‘Adaptive Critic Designs’ were carried out.
 10. January 1998 to June 1998 - **Visiting Lecturer**, University of Durban-Westville, South Africa. Taught a course System Simulation and Modeling to undergraduate level (Junior year).
 11. January 1997 to June 1997 - **Visiting Lecturer**, Natal Technikon, Durban, South Africa. Taught Microcontroller Systems to the BTech class.
 12. October 1995 to March 1996 - **Graduate Assistant**, Electrical Engineering Department, University of Natal, Durban, South Africa. Demonstrated practical classes for the 2nd year Electrical Engineering students.
 13. March 1994 to July 1994 - **Research Assistant**, Electrical Engineering Department, Abubakar Tafawa Balewa University, Bauchi, Nigeria. Research studies on image processing for robotics was carried out in collaboration with Dr. Muhammed I Onogu. In addition, teaching Electrical Engineering to 2nd years.

Industrial Experience:

1. August 1994 to September 1995 - **Computer/Electronics Engineer** at Square One Comnet, Maseru, Lesotho. Development of customised software packages in C. LANs were set-up for the Ministry of Finance, Lesotho. Computer hardware and software troubleshooting and repairs. Worked for Reuters, Lesotho on their communication networks. Major project - Project Manager for a 1 million South African Rands (\$330,000) computer and network upgrading for the Ministry of Finance, Lesotho.

2. April 1993 to October 1993 - **Electrical Engineer in Training** at the Zawang Mining Company, Jos, Nigeria. Worked on electromagnetic separators for tin and columbite, design and implemented 110 Volts DC high current power supplies for the EM separators. Involved in quality control and grading of minerals.
3. July 1992 to November 1992 - **Maintenance Engineer in Training** at the Agro-Complex, Jos, Nigeria. Worked with boilers, generators, and rice milling machines.
4. August 1991 to October 1991 - **Telecommunication Engineer in Training** at the Nigerian Telecommunications, Bauchi, Nigeria. Emphasis on (a) switching circuits in a digital and analog exchange (b) satellite communications.

C. TECHNICAL RESEARCH AREAS OF INTEREST

Main Research Areas

1. **Computational Intelligence (CI)** –

- Adaptive critic designs
- Adaptive dynamic programming
- Artificial immune networks
- Evolutionary algorithms
- Foraging algorithms
- Fuzzy systems
- Hardware implementations of CI algorithms
- Hybrid systems
- Neural networks
- Quantum evolution
- Reinforcement learning
- Swarm intelligence.

2. **Control Systems** –

- Adaptive control
- Distributed control
- Intelligent control
- Modeling and simulation
- Optimal control.

3. **Power and Energy Systems**

- Advanced automation
- Control of FACTS devices in Transmission and Distribution Networks
- Cyber physical energy systems
- Electric ship power system modelling, control and dynamic reconfiguration
- Harmonics detection and cancellation
- Intelligent control, modelling and optimization of power systems
- Optimal control and energy management in micro-grids and distributed energy systems
- Power system stability and control
- Real-time power system simulation
- Technologies for smart grids
- Vehicle-to-Grid (V2G) and Grid-to-Vehicle (G2V)
- Wide area monitoring and control.

4. **Systems of Systems Engineering** – Integrated control and dynamic optimization of power system generation, transmission and distribution systems.

Other Research Areas

5. **Adaptive Devices, Circuits and Systems** –

- Algorithms
- Reconfigurable devices, circuits and systems.

6. **Engineering Education** –

- Enhanced classroom learning
- Teaching methods.

7. **Sensor Networks** –

- Collective robotic search
- Dynamic control and scheduling of sensor networks
- Energy awareness
- Fault tolerance
- Human swarm interaction
- Localization
- Path navigation
- Security
- Scheduling.

8. **Signal and Image Processing** –

- Digital filter design
- Facial expression recognition
- Image quantization
- Nonlinear quantizer design
- Speaker identification and verification

D. PROFESSIONAL AFFILIATIONS/MAJOR ACTIVITIES

1. **Fellow** (since Sept. 2008) – Institution of Engineering and Technology (IET), UK.
2. **Fellow** (since Feb. 2009) – South African Institute of Electrical Engineers (SAIEE).
3. **Member of Board of Governors** (www.inns.org) – International Neural Network Society (2009-2011).
4. **Senior Member** (since 2008) – International Neural Network Society.
5. **Senior Member** (since 2002) – Institute of Electrical and Electronics Engineering (IEEE), USA.
Member of the following societies of IEEE:
 - Circuits and Systems;
 - Computational Intelligence;
 - Control;
 - Education;
 - Industry Application;
 - Industrial Electronics;
 - Instrumentation and Measurement;
 - Power Electronics;
 - Power Engineering; and
 - Systems, Man and Cybernetics.
6. **Member** – American Society for Engineering Education (ASEE).
7. **General Chair** – 2008 IEEE Swarm Intelligence Symposium (SIS), St. Louis, MO, USA.
8. **Chair** – 2007 Symposium on Computational Intelligence in Sensor Networks (CISN), Melbourne, Australia.
9. **Program Chair** – 2009 International Joint Conference on Neural Networks (IJCNN), Atlanta, GA, USA.
10. **Technical Program Co-Chair** for 2004 International Conference on Intelligent Sensing and Information Processing, Chennai, India.
11. **Program Co-Chair** – 2003 International Joint Conference on Neural Networks (IJCNN), Portland, OR, USA.
12. **Associate Editor** – IEEE Transactions on Neural Networks (2004 to 2007).
13. **Associate Editor** – IEEE Transactions on Instrumentation and Measurement (2007).
14. **Chair and Founder** – IEEE Computational Intelligence Society St. Louis Chapter (2004 to date).
15. **Chair** – IEEE Industry Applications Society St. Louis Chapter (2004 to date).
16. **Chair** – IEEE PES Working Group on Intelligent Control Systems (2007 to date).
17. **Chair** – IEEE PES Task Force on Intelligent Control Systems (2005 to 2007).
18. **Chair** – IEEE CIS Task Force on Power System Applications (2006 to date).
19. **Chair** - IEEE PES Student Activities Subcommittee (2009 to date).
20. **Vice-Chair** - IEEE PES Student Activities Subcommittee (2008 to 2009).
21. **Vice-Chair** - IEEE PES PSACE Intelligent Systems Subcommittee (2009 to date)
22. **Secretary** – IEEE PES PSACE Intelligent Systems Subcommittee (2004 to 2008).
23. **Secretary** – IEEE PES Student Activities Subcommittee (2006 to 2007).
24. **Investigator** – Intelligent Systems Center, Missouri S & T, Rolla, USA (2005 to date).
25. **Member** – Energy Research and Development Center, Missouri S & T, Rolla, USA (2009 to date).
26. **Director & Founder** – Real-Time Power and Intelligent System Laboratory (<http://rtpis.org>), Missouri S&T, Rolla, MO, USA

E. PUBLICATIONS AND PRESENTATIONS

E.1 Summary

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| • Edited Books and Proceedings | <i>Published/Accepted:</i> | 2 |
| • Book Chapters: | <i>Published/Accepted:</i> | 5 |
| • Journal Publications: | <i>Published/Accepted:</i> | 70 |
| • Refereed Conference Publications: | <i>Published/Accepted:</i> | 252 |
| • Technical Reports (available to the public): | | 1 |
| • Tutorials: | | 19 |
| • Keynote/Panel Talks: | | 7 |
| • Invited Presentations/Lectures: | | 55 |

Total 411

E.2 Edited Books and Proceedings

2. *Advances in Neural Network Research IJCNN 2003* edited by Wunsch DC, Hasselmo M, **Venayagamoorthy GK** and Wang D, ISBN: 0 08 0443320 6, Pergamon, Elsevier Science Ltd., 2003.
1. *Proceedings of the IEEE International Conference on Intelligent Sensing and Information Processing*, IEEE Press, NY, 2004, edited by Palaniswami M, Chandrasekhar B, **Venayagamoorthy GK**, Khantsala M, and Mohan K.

E.3 Book Chapters

5. Grant L, **Venayagamoorthy GK**, “Swarm Intelligence in Collective Robotic Search”, *Design and Control of Intelligent Robotic Systems*, Springer Series of "Studies in Computational Intelligence", edited by Liu, D., Chen-Tang, K., and Wang, L., 2009, pp. 29-48, ISBN: 978-3-540-89932-7.
4. **Venayagamoorthy GK**, “Wide Area Power Systems”, *McGraw Hill 2008 Yearbook of Science & Technology*.
3. Cai X, **Venayagamoorthy GK**, Wunsch DC, “Hybrid PSO-EA Algorithm for Training Feedforward and Recurrent Neural Networks for Challenging Problems”, *Advances In Computational Intelligences: Theory & Applications*, edited by Fei-Yue Wang and Derong Liu, Series in Intelligent Control and Intelligent Automation – Vol. 5, 2006, ISBN 981-256-734-8, pp. 171-213.
2. **Venayagamoorthy GK**, Harley RG, “Computational Intelligence for Control of FACTS Devices”, *Applied Mathematics for Restructured Electric Power Systems*, Chow, Joe H.; Wu, Felix F.; Momoh, James A. (Eds.), Springer Power Electronics and Power Systems Series, 2005, ISBN: 0-387-23470-5, pp. 201-237.
1. **Venayagamoorthy GK**, Harley RG, Wunsch DC, “Applications of Approximate Dynamic Programming in Power Systems Control”, *Handbook of Learning and Approximate Dynamic Programming*, Si J.; Barto A.; Powell W.; Wunsch DC. (Eds.), Wiley, July 2004, ISBN 0-471-66054-X, pp. 479-515.

E.4 Refereed Journal Papers Published and Accepted

70. Lee S, Park JW, **Venayagamoorthy, GK**, “New Power Quality Index in a Distribution Power System by Using RMP Model”, *IEEE Transactions on Industry Applications*, to appear.
69. Kulkarni R, **Venayagamoorthy, GK**, “Bio-Inspired Algorithms for Autonomous Deployment and Localization of Sensor Nodes”, *IEEE Transactions on Systems, Man and Cybernetics, Part C*, to appear.
68. Xiao P, **Venayagamoorthy GK**, Huang J, Corzine K, “Recurrent Neural Networks Based Impedance Measurement Technique for Power Electronic Systems”, *IEEE Transactions on Power Electronics*, available on IEEExplore, 2009.
67. Mitra P, **Venayagamoorthy GK**, “An Adaptive Control Strategy for DSTATCOM Applications in an Electric Ship Power System”, *IEEE Transactions on Power Electronics*, available on IEEExplore, 2009.
66. Kulkarni R, **Venayagamoorthy, GK**, “Generalized Neuron: Feedforward and Recurrent Architectures”, *Neural Networks*, Vol. 22. No. 7, Sept. 2009, pp. 1011-1017.
65. **Venayagamoorthy GK**, Bashyal S, “Effects of Spectral Radius and Settling Time in the Performance of Echo State Networks”, *Neural Networks*, Vol. 22, No. 7, Sept. 2009, pp. 861-863.
66. Saber A, **Venayagamoorthy GK**, “Intelligent Unit Commitment with V2G - A Cost-Emission Optimization”, *Journal of Power Sources*, August 20, 2009.
64. Mohagheghi S, **Venayagamoorthy GK**, Rajagopalan S., Harley RG, “Hardware Implementation of a Mamdani Based Fuzzy Logic Controller for a Static Compensator in a Multimachine Power System”, *IEEE Transactions on Industry Applications*, Vol. 45, No. 4, July/August 2009, pp. 1535-1544.
63. Johnson C, **Venayagamoorthy GK**, Mitra P, “Comparison of a Spiking Neural Network and an MLP for Robust Identification of Generator Dynamics in a Multimachine Power System Neural Networks”, *Neural Networks*, July-August 2009, pp. 833-841.
62. Potter C, **Venayagamoorthy GK**, Kosbar K, “RNN Based MIMO Channel Prediction Signal Processing”, *Signal Processing – a Publication of the European Association for Signal Processing*, July 19, 2009.
61. Qiao W, Harley RG, **Venayagamoorthy GK**, “Coordinated Reactive Power Control of a Large Wind Farm and a STATCOM Using Heuristic Dynamic Programming”, *IEEE Transactions on Energy Conversion*, Vol. 24, No. 2, June 2009, pp. 493-503.
59. **Venayagamoorthy GK**, Doctor S, Grant L, “Collective Robotic Search Using Hybrid Techniques: Fuzzy Logic and Swarm Intelligence Inspired by Nature”, *Engineering Applications of Artificial Intelligence*, Vol. 22, Issue 3, April 2009, pp. 431-441.
58. Ray S, **Venayagamoorthy GK**, “A Wide Area Measurement Based Neurocontrol for Generator Excitation Control”, *Engineering Applications of Artificial Intelligence*, Vol. 22, Issue 3, April 2009, pp. 473-481.
57. Qiao W, **Venayagamoorthy GK**, Harley RG, “Missing-Sensor-Fault-Tolerant Control for SSSC FACTS Device with Real-Time Implementation”, *IEEE Transactions on Power Delivery*, Vol. 24, No. 2, April 2009, pp. 740-750.

56. del Valle Y, Perkel J, **Venayagamoorthy GK**, Harley RG, “Optimal Allocation of FACTS Devices: Classical versus Metaheuristic Approaches”, *Transactions of the South Institute of Electrical Engineers*, March 2009.
55. **Venayagamoorthy GK**, “A Successful Interdisciplinary Course on Computational Intelligence”, *IEEE Computational Intelligence Magazine – A special issue on Education*, Vol. 4, No. 1, February 2009, pp. 14-23.
54. Xiao P, **Venayagamoorthy GK**, Corzine K, “A Seven-Level Shunt Active Power Filter for High Power Drive Systems”, *IEEE Transactions on Power Electronics*, Vol. 24, No. 1, Jan. 2009, pp. 6-13.
53. Palangpour P, **Venayagamoorthy GK**, Duffy K, “Prediction of Elephant Movement in a Game Reserve Using Neural Networks”, *Journal of New Mathematics and Natural Computation*, Vol. 5, No. 2, 2009, pp. 421-439.
52. Qiao W, **Venayagamoorthy GK**, Harley RG, “Real-Time Implementation of a STATCOM on a Wind Farm Equipped with Doubly Fed Induction Generators”, *IEEE Transactions on Industry Applications*, Vol. 45, No. 1, Jan/Feb. 2009, pp. 98-107.
51. Mohagheghi S, **Venayagamoorthy GK**, Harley RG, “Fully Evolvable Optimal Neuro-Fuzzy Controller Using Adaptive Critic Designs”, *IEEE Transactions on Fuzzy Systems*, Vol. 16, No. 6, Dec. 2008, pp. 1450-1461.
50. Yare Y, **Venayagamoorthy GK**, Aliyu UO, “Optimal Generator Maintenance Scheduling Using a Modified Discrete PSO”, *IET Proceedings on Generation, Transmission and Distribution*, Vol. 2, No. 6, Nov. 2008, pp. 834-846.
49. Bashyal S, **Venayagamoorthy GK**, “Recognition of Facial Expressions Using Gabor Wavelets and Learning Vector Quantization”, *Engineering Applications of Artificial Intelligence*, Vol. 21, No. 7, Oct. 2008, pp. 1056-1064.
48. Mazumdar J, Harley R, Lambert F, **Venayagamoorthy GK**, Page ML, “Intelligent Tool for Determining the True Harmonic Current Contribution of a Customer in a Power Distribution Network”, *IEEE Transactions on Industry Applications*, Vol. 44, No. 5, September/October 2008, pp. 1477 – 1485.
47. Das TK, **Venayagamoorthy GK**, Aliyu UO “Bio-inspired Algorithms for the Design of Multiple Optimal Power System Stabilizers: SPPSO and BFA”, *IEEE Transactions on Industry Applications*, Vol. 44, Issue 5, Sept/Oct. 2008, pp. 1445 – 1457.
46. Baek SM, Park JW, **Venayagamoorthy GK**, “Power System Control by Embedded Neural Network in Hybrid System Modeling”, *IEEE Transactions on Industry Applications*, Vol. 44, Issue 5, Sept/Oct. 2008, pp. 1458 – 1465.
45. Ray S, **Venayagamoorthy GK**, Chaudhuri B, Majumder R, “Comparison of Adaptive Critics and Classical Approaches Based Wide Area Controllers for a Power System”, *IEEE Transactions on System, Man and Cybernetics, Part B: Cybernetics*, Vol. 38, No. 4, August 2008, pp. 1002-1007.
44. Xiao P, Corzine K, **Venayagamoorthy GK**, “Multiple Reference Frame Based Control of Three-Phase PWM Boost Rectifiers Under Unbalanced and Distorted Input Conditions”, *IEEE Transactions on Power Electronics*, Vol. 23, No. 4, July 2008, pp. 2006-2017.
43. Ray S, **Venayagamoorthy GK**, “Wide-Area Signal-Based Optimal Neurocontroller for a UPFC”, *IEEE Transactions on Power delivery*, Vol. 23, Issue 3, July 2008, pp. 1597 – 1605.

42. Qiao W, Harley RG, **Venayagamoorthy GK**, “Fault-Tolerant Indirect Adaptive Neuro-Control for a Static Synchronous Series Compensator in a Power Network with Missing Sensor Measurements”, *IEEE Transactions on Neural Networks*, Vol. 19, No. 7, July 2008, pp. 1179 – 1195.
41. Ray S, **Venayagamoorthy GK**, Watanabe EH, “A Computational Approach to Optimal Damping Controller Design for a GCSC”, *IEEE Transactions on Power Delivery*, Vol. 23, Issue 3, July 2008, pp. 1673 – 1681.
40. Qiao W, Gao Z, Harley RG, **Venayagamoorthy GK**, “Robust Neuro-Identification of Nonlinear Devices and Systems with Missing Sensor Measurements” *Engineering Applications of Artificial Intelligence*, Vol. 21, Issue 4, June 2008, pp. 604-618.
39. **Venayagamoorthy GK**, Jetti SR, “A Dual Function Neuron Based External Controller for a Static Var Compensator”, *IEEE Transactions on Power Delivery*, Vol. 23, Issue 2, April 2008, pp. 997 – 1006.
38. del Valle Y, **Venayagamoorthy GK**, Mohagheghi S, Hernandez JC, Harley RG, “Particle Swarm Optimization: Basic Concepts, Variants and Applications in Power Systems”, *IEEE Transactions on Evolutionary Computation*, Vol. 12, Issue 2, April 2008, pp. 171 – 195.
37. Qiao W, **Venayagamoorthy GK**, Harley RG, “Optimal Wide-Area Monitoring and Non-Linear Adaptive Coordinating Control of a Power System with Wind Farm Integration and Multiple FACTS Devices”, *Neural Networks*, Vol. 21, Issues 2-3, March/April 2008, pp. 466-475.
36. Park JW, Harley RG, **Venayagamoorthy GK**, “Dual Heuristic Programming Based Nonlinear Optimal Control for a Synchronous Generator” *Engineering Applications of Artificial Intelligence*, Vol. 21, Issue 1, Feb. 2008, pp. 97-105.
35. Qiao W, Harley RG, **Venayagamoorthy GK**, “Fault-Tolerant Optimal Neurocontrol for a Static Synchronous Series Compensator Connected to a Power Network”, *IEEE Transactions on Industry Applications*, Vol. 44, Issue 1, Jan. 2008, pp. 74 – 84.
34. Ray S, **Venayagamoorthy GK**, “Real-Time Implementation of a Measurement based Adaptive Wide Area Control System Considering Communication Delays”, *IET Proceedings on Generation, Transmission and Distribution*, Vol. 2, Issue 1, Jan. 2008, pp. 62 - 70.
33. Liu W, Sarangapani J, **Venayagamoorthy GK**, Liu L, Wunsch DC, Crow M, Cartes D, "Decentralized Neural Network-based Excitation Control of Large-scale Power Systems", *International Journal of Control Automation and Systems*, vol. 5, no. 5, October 2007, pp. 526-538.
32. Liu W, Sarangapani J, **Venayagamoorthy GK**, Wunsch DC, Crow M, Cartes D, "Adaptive Neural Network based Stabilizing Controller Design for Single Machine Infinite Bus Power Systems", *Dynamics of Continuous, Discrete and Impulse Systems - an International Journal, Series B: Application and Algorithm*, Vol. 14 (S1), 2007, pp. 494-502.
31. Liu W, Sarangapani J, **Venayagamoorthy GK**, Wunsch DC, Crow M, Cartes D, "Two Neural Network Based Decentralized Controller Designs For Large Scale Power Systems", *Dynamics of Continuous, Discrete and Impulse Systems - an International Journal, Series B: Application and Algorithm*, Vol. 14 (S1), 2007, pp. 486-493.
30. Mohagheghi S, **Venayagamoorthy GK**, Harley RG, “Optimal Neuro-Fuzzy External Controller for a STATCOM in a 12-Bus Benchmark Power System”, *IEEE Transactions on Power Delivery*, vol. 22, issue 4, Oct. 2007, pp. 2548-2558.
29. Liu W, Liu L, Cartes D, **Venayagamoorthy GK**, “Binary Particle Swarm Optimization Based Defensive Islanding of Large Scale Power Systems”, *International Journal of Computer Science and Applications*, Vol. 4, Issue 3, 2007, pp. 69-83..

28. Xu R, **Venayagamoorthy GK**, Wunsch DC, “Modeling of Gene Regulatory Networks with Hybrid Differential Evolution and Particle Swarm Optimization”, *Neural Networks*, Vol. 20, Issue 8, October 2007, pp. 917-927.
27. Cai X, Zhang N, **Venayagamoorthy GK**, Wunsch DC, “Time Series Prediction with Recurrent Neural Networks Trained by a Hybrid PSO-EA Algorithm”, *Neurocomputing*, vol. 70, issues 13-15, August 2007, pp. 2342-2353.
26. Mohagheghi S, **Venayagamoorthy GK**, Harley RG, “Optimal Wide Area Controller and State Predictor for a Power System”, *IEEE Transactions on Power Systems*, vol. 22, issue 2, May 2007, pp. 693-705.
25. Mazumdar J, Harley R, Lambert F, **Venayagamoorthy GK**, “Neural Network Based Method for Predicting Nonlinear Load Harmonics”, *IEEE Transactions on Power Electronics*, vol. 22, issue 3, May 2007, pp. 1036 - 1045.
24. **Venayagamoorthy GK**, “Online Design of an Echo State Network Based Wide Area Monitor for a Multi-machine Power System”, *Neural Networks*, vol. 20, issue 3, April 2007, pp. 404-413.
23. **Venayagamoorthy GK**, Smith SC, Singhal G, “Particle Swarm Based Optimal Partitioning Algorithm for Combinational CMOS Circuits”, *Engineering Applications of Artificial Intelligence*, vol. 20, no. 2, March 2007, pp. 177-184.
22. Mohagheghi S, del Valle Y, **Venayagamoorthy GK**, Harley RG, “A Proportional-Integrator Adaptive Critic Design Based Neurocontroller for a Static Compensator in a Multimachine Power System”, *IEEE Transactions on Industrial Electronics*, vol. 54, issue 1, Feb. 2007, pp. 86-96.
21. **Venayagamoorthy GK**, Zha W, “Comparison of Non-Uniform Optimal Quantizer Design for Perceptual Speech Coding with Adaptive Critics and Particle Swarm”, *IEEE Transactions in Industry Applications*, vol. 43, no. 1, Jan/Feb. 2007, pp. 238-244.
20. Mohagheghi S, **Venayagamoorthy GK**, Harley RG, “Adaptive Critic Design Based Neuro-Fuzzy Controller for a Static Compensator in a Multimachine Power System”, *IEEE Transactions on Power Systems*, vol. 21, no. 4, Nov. 2006, pp. 1744-1754.
19. Moore PW, **Venayagamoorthy GK**, “Evolving Combinational Logic Circuits Using Particle Swarm, Differential Evolution and Hybrid DEPSO”, *International Journal of Neural Systems*, vol. 16, no. 2, 2006, pp. 163-177.
18. Park Jung-Wook, **Venayagamoorthy GK**, Harley RG “MLP/RBF Neural Networks Based On-Line Global Model Identification of Synchronous Generator”, *IEEE Transactions on Industrial Electronics*, vol. 52, no. 6, Dec. 2005, pp. 1685-1695.
17. **Venayagamoorthy GK**, Singhal G, “Comparison of Quantum-Inspired Evolutionary Algorithms and Binary Particle Swarm Optimization for Training MLP and SRN Neural Networks”, *Journal of Computational and Theoretical Nanoscience*, vol. 2, no. 4, December 2005, pp. 561-568.
16. Liu W, **Venayagamoorthy GK**, Wunsch DC, "A Heuristic Dynamic Programming based Power System Stabilizer for a Turbogenerator in a Single Machine Power System", *IEEE Transactions in Industry Applications*, vol. 41, no. 5, September 2005, pp. 1377-1385.
15. **Venayagamoorthy GK**, Kalyani RP, “Two Separate Continually Online Trained Neurocontrollers for a Unified Power Flow Controller”, *IEEE Transactions on Industry Applications*, vol. 41, no. 4, July 2005, pp. 906-916.
14. **Venayagamoorthy GK**, Harley RG, Wunsch DC, “Real-Time Dual Heuristic Programming-Based Neurocontroller for a Turbogenerator in a Multimachine Power System”, *Engineering Intelligent Systems Journal*, vol. 2, June 2005, pp. 105-111.

13. Park JW, Harley RG, **Venayagamoorthy GK**, “Decentralized Optimal Neuro-controllers for Generation and Transmission Devices in an Electric Power Network”, *Engineering Applications of Artificial Intelligence*, vol. 18, issue 1, February 2005, pp. 37-46.
12. Park JW, Harley RG, **Venayagamoorthy GK**, “New External Neuro-Controller for Series Capacitive Reactance Compensator in a Power Network”, *IEEE Transactions on Power Systems*, vol. 19, no. 3, August 2004, pp. 1462-1472.
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21. Venayagamoorthy GK, Sunderpersadh N, "Comparison of Text-Dependent Speaker Identification Methods for Short Distance Telephone Lines using Artificial Neural Networks", *IEEE-INNS International Joint Neural Networks Conference*, July 24-27, 2000, Como, Italy, pp. 253-258.
20. Venayagamoorthy GK, Harley RG, "Decentralised Online Neuro-Identification of Turbogenerators in a Multi-machine Power System", *IEEE Power Engineering Society Summer Meeting*, Seattle, USA, July 15-20, 2000, pp. 217-222.
19. Venayagamoorthy GK, Wunsch DC, Harley RG, "Neurocontrol of Turbogenerators with Derivatives Adaptive Critics", *IFAC Conference on Technology Transfer in Developing Countries – Automation in Infrastructure Creation*, Pretoria, South Africa, July 5-7, 2000, pp. 83-88.
18. Venayagamoorthy GK, Harley RG, Wunsch DC, "Adaptive Critic Based Neurocontroller for Turbogenerators with Global Dual Heuristic Programming", *Proceedings of the IEEE PES WM*, Singapore, January 23-27, 2000, vol. 1 pp. 291-294.
17. Moonasar V, Venayagamoorthy GK, "Speaker Identification Using a Combination of Different Parameters as Feature Inputs to an Artificial Neural Network Classifier", *IEEE Africon 99 Conference*, Cape Town, South Africa, September 28-October 2, 1999, vol. 1, pp. 189-194.
16. Venayagamoorthy GK, Harley RG, "A Robust Artificial Neural Network Controller for a Turbogenerator when Line Configuration Changes", *IEEE Africon 99 Conference*, Cape Town, South Africa, September 28- October 2, 1999, vol. 2, pp. 917-922.
15. Venayagamoorthy GK, Wunsch DC, Harley RG, "Neurocontrol of Turbogenerators with Adaptive Critic Designs", *IEEE Africon 99 Conference*, Cape Town, South Africa, September 28- October 2, 1999, pp. 489-494.
14. Venayagamoorthy GK, Harley RG, "Design of a Desired Response Predictor for a Continually Online Trained Artificial Neural Network Controller for a Turbogenerator ", *International Conference on Artificial Intelligence*, Durban, South Africa, September 24-27, 1999, pp. 70-74.
12. Venayagamoorthy GK, Sunderpersadh N, Andrew TN, "Speaker Identification and Verification over Short Distance Telephone Lines using Artificial Neural Networks", *Proceedings of the South African Telecommunications Networks and Applications Conference*, SATNAC 99, Durban, South Africa, September 6-8, 1999, pp. 378-381.
12. Venayagamoorthy GK, Harley RG, "Implementation of an Adaptive Neural Network Identifier for Effective Control of Turbogenerators", *IEEE Budapest Power Tech '99 Conference*, Budapest, Hungary, August 29-September 2, 1999, paper no. BPT99-431-6.
11. Venayagamoorthy GK, Harley RG, "Experimental Studies with a Continually Online Trained Artificial Neural Network Controller for a Turbogenerator", *INNS-IEEE International Joint Conference on Neural Networks, IJCNN' 99*, Washington, DC, USA, July 10-16, 1999, vol. 3, pp. 2158-2163. **This paper received the best poster paper award of the conference.**
10. Venayagamoorthy GK, Harley RG, "A Continually Online Trained Artificial Neural Network Identifier for a Turbogenerator", *IEEE International Electric Machines and Drives Conference IEMDC 99*, Seattle, USA, May 9-12, 1999, pp. 404-406.

9. Venayagamoorthy GK, Harley RG, "An Artificial Neural Network Identifier for the Control of Turbogenerators", *Proceedings of the South African Universities Power Engineering Conference (SAUPEC 99)*, University of Potchefstroom, South Africa, January 19-21, 1999, pp. 115-117.
8. Venayagamoorthy GK, Harley RG, "Simulation Studies with a Continuously Online Trained Artificial Neural Network Controller for a Micro-Turbogenerator", *IEE International Conference on Simulation*, University of York, UK, September 30-October 2, 1998, vol. 457, pp. 405-412.
7. Harley RG, Diana G, Burton B, Venayagamoorthy GK, "Modern Control of Electrical Machines", *Proceedings of the International conference on Systems Signals Control and Computers (SSCC 98)*, Technikon Natal, Durban, South Africa, September 22-24, 1998, pp. 32-36.
6. Venayagamoorthy GK, Kanny M, Onogu MI, "On the Development of a Manipulator for Arc Welding", *Proceedings of the International conference on Systems Signals Control and Computers (SSCC 98)*, Technikon Natal, Durban, South Africa, September 22-24, 1998, pp. 134-137.
5. Venayagamoorthy GK, Moonasar V, Sandrasegaran K, "Voice Recognition Using Neural Networks", *Proceedings of IEEE Comsig'98*, University of Cape Town, South Africa, September 7-8, 1998, pp. 29-32.
4. Venayagamoorthy GK, Harley RG, "A Practical Continually Online Trained Artificial Neural Network Controller for a Turbogenerator", *IEEE International Symposium on Industrial Electronics*, University of Pretoria, South Africa, July 7-10, 1998, pp. 385-389.
3. Venayagamoorthy GK, Sandrasegaran K, "Using Computer Simulations to Enhance Electrical Engineering Education", *International Symposium on Technology Education and Training*, Cape Town, South Africa, June 27-July 1, 1998, pp. 151-156.
2. Venayagamoorthy GK, Harley RG, "Implementation of Neural Controller for a Turbogenerator", *CIGRE 3rd Southern Africa Regional Conference*, Johannesburg, South Africa, May 19-21, 1998.
1. Venayagamoorthy GK, Harley RG, "A Continuously Online Trained Artificial Neural Network Controller for a Micro-Turbogenerator", *Proceedings of the South African Universities Power Engineering Conference (SAUPEC 98)*, University of Stellenbosch, South Africa, January 19-21, 1998, pp. 215-218.

E.7 Technical Report

Venayagamoorthy GK, "Adaptive Critic Design Based Neurocontrollers for Turbogenerator Control", *Report to the IEEE Neural Network Society*, available at <http://iee-nns.org/edu/research/reports-2001/index.html>.

E.8 Tutorials and Workshops

19. "Advanced Computational Intelligence Methods for Power Systems Monitoring, Control and Optimization", *Intelligent System Applications to Power Systems (ISAP 2009)*, Curitiba, Brazil, Nov. 8-12, 2009.
18. "Applications of Adaptive Critic Designs", *IEEE-INNS International Joint Conference on Neural Networks*, Atlanta, GA, USA, June 14-19, 2009.
17. "Computing with Intelligence for Identification and Control of Nonlinear Systems", *IEEE Symposium on Computational Intelligence in Control and Automation*, Nashville, TN, USA, March 30-April 2, 2009.
16. "Swarm Intelligence for Power Systems", *IEEE Swarm Intelligence Symposium*, St. Louis, MO. USA, September 21-23, 2008
15. "Swarm Intelligence for Sensor Network Applications", *IEEE Swarm Intelligence Symposium*, St. Louis, MO. USA, September 21-23, 2008.
14. "Computational Intelligence for Sensor Networks", *Symposium on Computational Intelligence for Sensor Networks*, Melbourne, Australia, December 3-6, 2007.
13. "Advanced Computational Intelligence for Identification, Control and Optimization of Nonlinear Systems", *22nd IEEE International Symposium on Intelligent Control*, Singapore, October 1-3, 2007.
12. "Swarm Intelligence for Power and Energy Systems", *IEEE PowerAfrica conference and exposition*, Johannesburg, South Africa, July 16-20, 2007.
11. "Computational Intelligence for Power Systems", *ABB AB Corporate Research Center*, Vasteras, Sweden, June 4-5, 2007.
10. "Advanced Computational Intelligence for Identification, Control and Optimization of Nonlinear Systems", *IEEE Symposium Series on Computational Intelligence*, Honolulu, USA, April 1-5, 2007.
9. "Advanced Computational Intelligence Techniques for Identification, Control and Optimization of Nonlinear Systems", *IEEE International Symposium on Intelligent Control*, Munich, Germany, October 3, 2006.
8. "Swarm Intelligence and Applications", *Intelligent Sensors, Sensor Networks and Information Processing Conference*, Melbourne, Australia, December 5-8, 2005.
7. "Adaptive Critic Designs for Power Systems Control and Optimization", *Intelligent Systems Application Power Systems (ISAP) Conference*, Washington DC, USA, November 6-10, 2005.
6. Computational Intelligence, Durban Institute of Technology, South Africa, July 20-21, 2005
5. "Computational Intelligence for Identification, Control and Optimization of Power Systems: Generation and Transmission", *IEEE PES Inaugural 2005 Conference and Exposition in Africa*, Durban, South Africa, July 11-15, 2005.

3. “Swarm Intelligence”, *Conference on Neuro-Computing and Evolving Intelligence*, Auckland, New Zealand, December 13-15, 2004.
4. “Computational Intelligence for Identification, Control and Optimization of Nonlinear Systems”, *IEEE International Symposium on Intelligent Control*, Taipei, Taiwan, September 1-5, 2004.
2. “Computational Intelligence”, *International Conference on Intelligent Sensing and Information Processing*, Chennai, India, January 4-7, 2004.
1. “Computational Intelligence for Identification, Control and Optimization of Nonlinear Systems”, *IEEE International Symposium on Intelligent Control*, Houston, TX, USA, October 4-7, 2003.

E.9 Keynotes and Panel Talks

7. *Keynote Opening Plenary - Smart Grid and Electric Transportation*, 12th International IEEE Conference on Intelligent Transportation Systems, St. Louis, MO, USA, October 4 - 7, 2009.
6. *Panel: Potentials and Promises of Computational Intelligence for Smart Grids*, IEEE PES General Meeting Smart Grid Panel, Calgary, Canada, July 28, 2009.
5. *Panel: Advanced Computational Methods Applied to the Nigerian Power System*, IEEE PES General Meeting NSF-Sponsored US-African Collaborative Research and Education Panel, Calgary, Canada, July 28, 2009.
4. *Panel: Cyber Technologies for Shaping the Evolution of Smart Grids*, National Workshop on Research Directions for Future Cyber-Physical Energy Systems, Baltimore, USA, June 4, 2009.
3. *Panel: A DSTATCOM Controller Tuned by Particle Swarm Optimization for an Electric Ship Power System*, IEEE PES General Meeting Intelligent Techniques for Distribution System Control, Pittsburgh, PA, USA, July 20-24, 2008.
2. *Panel: Swarm Intelligence for Transmission System Control*, IEEE PES General Meeting Intelligent Techniques for Transmission System Control Panel, Tampa, FL, USA, June 24-28, 2007.
1. *Panel: Intelligent Control Schemes Using Neural Networks for Power System Generator Excitation and Turbine* Montreal, Canada, June 18-21, 2006.

E.10 Invited Presentations/Lectures

55. *Advanced Computational Methods for the Smart Grid*, South African Institute of Electrical Engineers Western Cape Center, Cape Town, South Africa, August 13, 2009.
54. *The Smart Grid: the Road to Energy Security and Sustainability*, Mississippi State University, MS, USA, March 31, 2009.
53. *The Smart Grid: the Road to Energy Security and Sustainability*, IDISA, University of Lugano, Switzerland – April 6, 2009.
52. *The Smart Grid: the Road to Energy Security and Sustainability*, University of Connecticut, Storrs, CT, USA, March 24, 2009
51. *EFRI-COPN: Neuroscience and Neural Networks for Engineering the Future Intelligent Electric Power Grid*, Arlington, VA, March 5, 2009
50. *Potential and Promises of Computational Intelligence for Wide Area Monitoring and Control of Power Systems*, IEEE CIS Chilean Chapter Summer Workshop, Santiago, Chile, December 15-17, 2008.

49. A Successful Interdisciplinary Course on Computational Intelligence, IEEE St. Louis Education Chapter, Southern Illinois University, Carbondale, IL, USA, December 2, 2008.
48. Potentials and Promises of Computational Intelligence for the ‘Smart’ Grid, London City University, London, England, October 28, 2008.
47. Computational Intelligence for Wide Area Monitoring and Control of Power Systems, University of Strathclyde, Scotland, October 27, 2008.
46. Computational Intelligence in Modeling, Control and Optimization in Electric Power and Energy Systems, Workshop on Building Computational Intelligence and Machine Learning Virtual Organizations, George Mason University, Fairfax, VA, USA, October 24, 2008.
45. Computational Intelligence for Improved Energy Security and Sustainability, Iowa State University, USA, September 30, 2008.
44. Computational Intelligence Based Techniques for Improved Energy Security and Sustainability, Yonsei University, Seoul, South Korea, July 11, 2008.
43. Computational and Intelligent Techniques for Improved Energy Security and Sustainability, Texas A&M University, College Station, TX, May 14, 2008.
42. Real-Time Hardware-in-the-Loop Simulation Facilities, Intelligent Power Infrastructure Consortium, Georgia Institute of Technology, Atlanta, GA, USA, April 10, 2008.
41. Wide Area Measurements Based Damping Control, University of Dresden, Germany, March 27, 2008.
40. New Developments in Control and Optimization for Energy Security and Sustainability, ETH, Zurich, Switzerland, March 26, 2008.
39. New Developments in Control and Optimization for Energy Security and Sustainability, University of Arkansas, Fayetteville, AR, March 3, 2008.
38. My Experiences of the New Faculty Teaching Scholar Program – A presentation to UM Board of Curators, University of Missouri, St. Louis, January 24, 2008.
37. Computational Intelligence in Power Systems, University of Duisburg-Essen, Germany, January 8, 2008.
36. Sensors: Dynamic Scheduling and Control in Sensor Networks Using Adaptive Dynamic Programming, Australian Intelligent Sensing, Sensor Networks and Information Processing Annual Researchers’ Meeting, Melbourne, Australia, December 7, 2007.
35. Computational Intelligence for FACTS Devices, ABB FACTS, Vasteras, Sweden, August 10, 2007.
34. Intelligent Identification and Prediction of Nonlinear Dynamics, University of Cyprus, Cyprus, July 31, 2007.
33. Computational Intelligence for the Next Generation Power Systems, ABB, Vasteras, Sweden, June 15, 2007.
32. Computational Intelligence for Scheduling Power System Maintenance, Royal Institute of Technology, Stockholm, Sweden, June 13, 2007.
31. Computational Intelligence Applications in Power Systems, University of Cape Town, South Africa, February 2, 2007.
30. Intelligent Control of Wind Farms with FACTS Devices in Power Networks, University of Duisburg-Essen, Germany, November 6, 2006.

29. Computational Intelligence and Its Applications, University Lecture, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana, September 11, 2006.
28. Intelligent Control for Improved Stability of Wind Farms Integrated to the Grid, EPRI 9th FACTS User Group Meeting, Montreal, Canada, September 6-8, 2006.
27. Neural Networks for Real-World Applications, Deakin University, Geelong, Australia, December 13, 2005.
26. Swarm Intelligence and Engineering Applications, IEEE CIS/IAS St. Louis Chapter/CISR sponsored seminar – University of Missouri-Columbia, MO, USA, November 18, 2005.
25. Grant Writing, Council of Graduate Students, Missouri S & T, Rolla, November 15, 2005.
24. The Intelligent Grid, Center for Advanced Power Systems, Florida State University, Tallahassee, FL, USA, September 19, 2005.
23. Swarm Intelligence, School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, USA, September 16, 2005.
22. Real-Time Implementation of Intelligent Controllers: Fuzzy Logic and Optimal Neurocontrollers for a STATCOM and a UPFC in a Multimachine Power System, EPRI 8th FACTS User Group Meeting, Stamford, CT, USA, August 17-19, 2005.
21. Engineering Applications of Swarm and Evolutionary Techniques, Abubakar Tafawa Balewa University, Bauchi, Nigeria, April 1, 2005.
20. Adaptive Critic Designs, Federal University of Rio de Janeiro (COPPE), Brazil, November 22, 2004.
19. Computational Intelligence Techniques for Modeling and Control of FACTS Devices, EPRI 7th FACTS User Group Meeting, Austin, TX, USA, November 3-5, 2004.
18. Particle Swarm Optimization and Applications, University of Kwazulu-Natal, South Africa, April 19, 2004.
17. Adaptive Critic Designs for Power System Generation and Transmission Control, Stanford University, USA, March 29, 2004.
16. Intelligent Control of Power Systems: Generators and FACTS Devices, Indian Institute of Technology, Chennai, India, January 8, 2004.
15. Computational Intelligence Applied to Power Systems Control, US-Africa Research and Education Collaboration, *NSF Control, Networks, and Computational Intelligence Sponsored Workshop*, Howard University, Washington DC, USA, November 5-6, 2003.
14. Adaptive Critics Designs for AVR/PSS in Multimachine Power Systems, *IEEE PES Power System Stability Controls Subcommittee Meeting*, Toronto, Canada, July 16, 2003.
13. Intelligent Control, Power Group Seminar, Georgia Institute of Technology, Atlanta, USA, June 24, 2003.
12. Computational Intelligence Applications for Identification and Control of Nonlinear Large Scale Systems, Abubakar Tafawa Balewa University, Bauchi, Nigeria, December 20-21, 2002.
11. Intelligent Control of Turbogenerators on the Power Grid, CEPPEL-COPPE Workshop on Intelligent Systems in Power Systems Applications, Rio de Janeiro, Brazil, September 8-10, 2002.
10. Intelligent Control of Turbogenerators on the Electric Power Grid, EPRI-NSF Workshop on Global Dynamic Optimization of the Electric Power Grid, Playacar, Mexico, April 10-12, 2002.

9. Excitation and Turbine Adaptive Critic Neurocontrol of Multiple Generators on the Electric Power Grid, NSF Workshop on Learning and Approximate Dynamic Programming, Playacar, Mexico, April 8-10, 2002.
8. Intelligent Control with Adaptive Critic Designs, Department of Electrical and Computer Engineering Guest Lecture, Missouri S & T, Rolla, USA, October 8-10, 2001.
7. Intelligent Control and Hardware Implementations for Nonlinear Large Scale Systems, IEEE MISSOURI S & T chapter seminar, Missouri S & T, Rolla, MO, USA, March 14, 2001.
6. Optimal Intelligent Control of Generators on the Power Grid, IEEE MISSOURI S & T chapter seminar, Missouri S & T, Rolla, MO, USA, November 14, 2000.
5. Optimization Techniques for Intelligent Control Designs, Power Group Seminar, Georgia Institute of Technology, Atlanta, USA, September 15, 2000.
4. Adaptive Critics in Turbogenerator Control, Electrical Engineering Department, Georgia Institute of Technology, Atlanta, USA, May 27-28, 1999.
3. Neurocontrol of Turbogenerators, Electrical Engineering Department, Texas Tech University, Lubbock, USA, April 9, 1999.
2. A Robust ANN Controller for a Turbogenerator, SAIEE postgraduate evening, Electrical Engineering Department, University of Natal, Durban, South Africa, August 20, 1998.
1. An ANN Controller for a Turbogenerator, SAIEE postgraduate evening, Electrical Engineering Department, University of Natal, Durban, South Africa, August 21, 1997.

F. GRADUATE/RESEARCH GUIDANCE

F.1 Advisor/Co-advisor for Completed PhD/MS/MTech Degrees (3 PhDs, 13 MS)

1. Swakshar Ray – *PhD in Electrical Engineering, Thesis: Intelligent Wide Area Control of Generators and FACTS devices*, completed on November 14, 2007
2. Peng Xiao - *PhD in Electrical Engineering, Thesis: New Techniques to Improve Power Quality and Improve and Evaluate Stability in Modern All-Electric Naval Power Systems*, completed on September 21, 2007 (co-advised with Dr. Corzine).
3. Wenxin Liu – *PhD in Electrical Engineering, Thesis: Power System Stabilization Using Neural Networks*, completed on June 1, 2005 (co-advised with Dr. Wunsch).
4. Bipul Luitel - *MS in Computer Engineering, Thesis: Applications of Swarm, Evolutionary and Quantum Algorithms in System Identification and Digital Filters*, completed October 21, 2008.
5. Shishir Bashyal - *MS in Computer Engineering, Thesis: An Approach for Human-Swarm Interaction*, completed May 14, 2008.
6. Sandhya Jetti – *MS in Electrical Engineering, Thesis: SVC Supplementary Damping Controllers*, completed October 8, 2007.
7. Tridib Das – *MS in Electrical Engineering, Thesis: Bio-inspired Techniques for Simultaneous Optimal Design of Multiple Power System Stabilizers*, completed June 29, 2007.
8. Mani Hunjan – *MS in Electrical Engineering, Thesis: Immune System based Control of Excitation and Power System Stabilizers*, completed May 15, 2007.
9. Richard Welch – *MS in Computer Engineering, Thesis: Intelligent Optimal Control of a Grid Independent Photovoltaic System Using Adaptive Critic Designs and Fuzzy Logic*, completed July 2006.
10. Gaurav Singhal – *MS in Computer Engineering, Thesis: Application of Swarm and Evolutionary Techniques to Neural Network Training and Partitioning Combinational CMOS Circuits*, completed April 2006.
11. Wenwei Zha – *MS in Computer Engineering, Thesis: Novel Optimization Methods for Scalar and Vector Quantization Design*, completed April 2006.
12. Narendra Chennamsetty – *MS in Mechanical Engineering, Thesis: Development of Automatic Facial Expressions Recognition System Using Gabor Wavelets and Learning Vector Quantization Networks*, completed February 2005 (co-advised with Dr. Tokuhiko).
13. Sheetal Doctor – *MS in Electrical Engineering, Thesis: Computational Intelligence Techniques for Collective Robotic Search*, completed December 2004.
14. Venu Gudise – *MS in Computer Engineering, Thesis: Applications of Particle Swarm Optimization for Neural Network Training and Digital Systems*, completed May 2004.
15. Kalyani Padma Radha – *MS in Electrical Engineering, Thesis: Indirect Adaptive Neurocontrol of a Unified Power Flow Controller*, completed July 2003.
16. Viresh Moonasar – *MTech in Electronic Engineering, Thesis: Hardware Implementation of an Automatic Speaker Recognition System using Artificial Neural Networks*, completed March 2003 (completed degree from the former Durban Institute of Technology, South Africa).

F.2 Advisor/Co-advisor for PhD Degrees in Progress

1. Raghavendra Kulkarni – *PhD in Electrical Engineering, Thesis: Computational Intelligence Methods in Wireless Sensor Networks*, expected completion by May 2010.
2. Yusuf Yare – *PhD in Electrical Engineering, Thesis: Intelligent Generator Maintenance Scheduling and Economic Dispatch for a Modern Power System*, expected completion by May 2010.
3. Pinaki Mitra - *PhD in Electrical Engineering, Thesis: Intelligent Dynamic Reconfiguration and Control of Power Systems*, expected completion by July 2010.
4. Chuan Yan - *PhD in Electrical Engineering, Thesis: Intelligent Controls of All-Electric Ship Power System*, expected completion by July 2010 (co-advised with Dr. Corzine).
5. Cameron Johnson- *PhD in Computer Engineering, Thesis: Hardware Platforms for Implementing Computational Intelligence Paradigms*, expected completion by December 2010.
6. Lisa Smith - *PhD in Electrical Engineering, Thesis: Advanced Computational Techniques and Real-Time Studies for the Next Generation Energy Systems*, expected completion by May 2011.
7. Parviz Palangpour - *PhD in Computer Engineering, Thesis: Fault-Tolerant Hardware Platforms for the Next Generation Energy Systems*, expected completion by May 2011.
8. Christopher Hutson - *PhD in Electrical Engineering, Thesis: Intelligent Power and Energy Management of Hybrid Vehicles*, expected completion by May 2011 (co-advised with Dr. Corzine).
9. Bipul Luitel - *PhD in Computer Engineering, Thesis: Development Computational Intelligence Algorithms and Hardware Implementations*, expected completion by Dec. 2011.
10. Joseph Makasa - *PhD in Electrical Engineering, Thesis: Advanced Computational Techniques for Improved Power System Voltage Stability*, expected completion by May 2012.

F.3 Advisor/Co-advisor for MS Degrees in Progress

1. Ryan Cleaver- *MS in Computer Engineering, Thesis: Design and Implementations of Advanced Neural Network Architectures*, to complete by May. 2010.
2. Anusha Mannava - *MS in Electrical Engineering, Thesis: Optimal Control*, to complete by May. 2010 (co-advised with Dr. Balakrishnan).

F.4 Member of PhD and MS Committee for Completed Degrees

1. Jing Huang, *PhD Committee (EE)* - 2009
2. Xiaohua Wang, *PhD Committee (ME)* – 2007
3. Shuai Lu, Member, *PhD Committee(EE)* – 2007
4. Xindi Cai, Member, *PhD Committee (CpE)* – 2005
5. Ditshupo Eco Maje, Member, *PhD Committee (EE)* – 2004
6. Xiao Hu, Member, *PhD Committee (CpE)* – 2004
7. Sam Mulder, Member, *PhD Committee (CS)* – 2004
8. Praveen Krishnan, *MS Committee (EE)* – 2007
9. Derek Schmitz, *MS Committee (ME)* – 2006

10. Lee Tran, *MS Committee (EE)* – 2006
11. Sam Mulder, Member, *MS Committee (CS)* – 2002
12. Yamille del Valle, *PhD Committee (EE, Georgia Institute of Technology, Atlanta)* – 2009.
13. Wei Qiao, *PhD Committee (EE, Georgia Institute of Technology, Atlanta)* – 2008.
14. Joy Mazumdar, *PhD Committee (EE, Georgia Institute of Technology, Atlanta)* - 2006.
15. Salman Mohagheghi, *PhD Committee (EE, Georgia Institute of Technology, Atlanta)* - 2006.
16. Jung-Wook Park, Member, *PhD Committee (EE, Georgia Institute of Technology, Atlanta)* - 2003.

F.5 Member of PhD and MS Committee for Pending Degrees

1. Jing Dai, *PhD Committee* (Georgia Institute of Technology, Atlanta)

F.6 Undergraduate Research Mentoring for CpE/CS/EE Students

- *Past and Current students from Missouri University of Science and Technology, USA*
 1. Kelly Debolt – Power System Simulation and Visualization
 2. Paul Myers – Intelligent Algorithms for Solving the Sudoku Puzzle.
 3. Ukoh Umah – Intelligent Algorithms on the Real-Time Digital Simulator (*Opportunities for Undergraduate Research Experience Awardee*).
 4. Phillip Holloway – Intelligent Transportation Systems (*Opportunities for Undergraduate Research Experience Awardee*).
 5. Lisa Smith – Collective Robotic Search (*Opportunities for Undergraduate Research Experience Awardee, has published 1 conference paper*).
 6. Parviz Palangpour – Neural networks for Elephant Movement Tracking (*Opportunities for Undergraduate Research Experience Awardee, has published 2 conference papers*)
 7. Phillip Moore – Evolvable Hardware (*Opportunities for Undergraduate Research Experience Awardee, has published 2 conference papers and a journal*).
- *Ten students from Durban Institute of Technology, Durban, South Africa*
 1. R Hansrajh - An Integrated Network Security and Environmental Monitor for a LAN, completed May 1998.
 2. D. Naidoo - Plant Automation Using Only PID Control and Combined PIS and Fuzzy Logic Control, completed June 1998.
 3. P. Pillay - Design and Implementation of PC based Spectrum Analyser, completed December 1998.
 4. V. Moonasar - Speaker Recognition Using ANNs, completed Novemeber 1998.
 5. N. Sunderpersadh - Speaker Identification over the Telephone using ANNs, completed November 1999.

6. S. Gounden - Comparison of ANN Implementation on Different Software Platforms and Processors, completed June 2000.
7. R. Naidoo - Fingerprint Recognition using ANNs, completed June 2000.
8. L. Govender - An Investigation on ECG/EKG Classification using ANNs, completed June 2000.
9. S. Chetty - An Investigation into the Detection of Brain Tumours Using EEG Signals with ANNs, completed June 2001.
10. S. Singh - Online Identification of a Multimachine Power System Using a Radial Basis Function Neural Networks, completed June 2002.

F.7 Postdoctoral Researchers and Visiting Scholars to Venayagamoorthy's RTPIS Laboratory

1. Dr. Ahmed Saber – Postdoctoral Researcher – October 2008 to date.
2. Dr. Komla Folly, Fulbright Visiting Scholar – January to December 2009.
3. Dr. Ejike Anene - Postdoctoral Researcher – March to August 2009.

G. GRADUATE THESIS EXTERNAL EXAMINER

1. Tiako Remy, Master's degree thesis – “Power System Stabilizer Design”, Department of Electrical Engineering, University of Cape Town, South Africa, 2007.
2. M. M. Bello, Master's degree thesis – “Spatial Modelling and Dynamics of a PV-Powered Fuel Cell Generator for Renewable Energy Application”, University of Kwazulu-Natal, Durban, South Africa, 2005.
3. J. J. Sooful, Master's degree thesis – “Automated Phoneme Mapping for Cross-Language Speech Recognition”, University of Pretoria, South Africa, 2004.
4. Angus Salkeld, Master's degree thesis – “The Design of a High Voltage Amplifier”, Department of Electrical Engineering, University of Cape Town, South Africa, 1999.

H. CURRENT AND PAST RESEARCH COLLABORATORS

1. Dr. Usman Aliyu, Professor, Electrical Engineering Programme, Abubakar Tafawa Balewa University, Nigeria.
2. Dr. Ejike Anene, Lecturer, Electrical Engineering Programme, Abubakar Tafawa Balewa University, Nigeria.
3. Dr. Sanjeev Agrawal, Research Assistant Professor of Electrical and Computer Engineering, Missouri S & T, USA.
4. Dr. Ganiyu Bakare, Senior Lecturer, Electrical Engineering Programme, Abubakar Tafawa Balewa University, Nigeria.
5. Dr. S. N. Balakrishnan, Professor of Mechanical and Aerospace Engineering, Missouri S & T, USA.
6. Dr. David Cartes, Associate Professor of Mechanical Engineering and Associate Director for Center for Advanced Power Systems, Florida State University, Tallahassee, FL, USA.
7. Dr. Sunil Cherian, Founder and CEO of Spirae, Fort Collins, CO, USA.
8. Dr. Joe Chow, Professor, Department of Electrical and Computer Systems Engineering, Rensselaer Polytechnic Institute, Troy, NY, USA.
9. Dr. Keith Corzine, Professor of Electrical and Computer Engineering, Missouri S & T, USA.
10. Dr. Mariesa Crow, Fred Finely Distinguished Professor of Electrical and Computer Engineering, Missouri S & T, USA.
11. Dr. Cihan Dagli, Professor of Engineering Management and System Engineering, Missouri S & T, USA.
12. Dr. Kevin Duffy, Professor, Department of Industrial Engineering, Durban Institute of Technology, South Africa.
13. Dr. Istvan Erlich, Chair and Professor, Electric Power Institute, University of Duisburg-Essen, Germany.
14. Dr. Djalma Falcao, Professor, Department of Electrical Engineering, Federal University of Rio de Janeiro, Brazil.

15. Dr. Komla Folly, Associate Professor, Department of Electrical Engineering, University of Cape Town, South Africa.
16. Dr. Ronald Harley, Duke Power Distinguished Professor, School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, USA.
17. Dr. Sarangapani Jagannathan, William A. Rutledge Emerson Electric Co. Distinguished Professor of Electrical and Computer Engineering, Missouri S & T, USA.
18. Dr. Kurt Kosbar Associate Professor of Electrical and Computer Engineering, Missouri S & T, USA.
19. Dr. K Krishnamurthy, Vice Provost for Research and Professor of Mechanical and Aerospace Engineering, Missouri S & T, USA.
20. Dr. Gerhard Krost, Professor, Department of Electrical Engineering, University of Duisburg-Essen, Germany.
21. Dr. Elias Kyriakides, Lecturer, Electrical and Computer Engineering, University of Cyprus, Cyprus.
22. Dr. Derong Liu, Professor, Department of Electrical and Computer Engineering, University of Illinois, Chicago, USA.
23. Dr. Frank Liu, Professor of Computer Science, Missouri S & T, USA.
24. Dr. Wenxin Liu, Research Scientist, Center for Advanced Power Systems, Florida State University, Tallahassee, FL, USA.
25. Dr. Rajat Ma, Research Scientist, ABB AB, Corporate Research, Vasteras, Sweden.
26. Dr. Ann Miller, Cynthia Tang Distinguished Professor of Electrical and Computer Engineering, Missouri S & T, USA.
27. Dr. Sukumar Mishra, Assistant Professor, Indian Institute of Technology, New Delhi, India.
28. Dr. Marimuthu Palaniswami, Associate Professor, Department of Electrical and Electronic Engineering, University of Melbourne, Australia.
29. Dr. Jung-Wook Park, Assistant Professor, Yonsei University, Seoul, South Korea.
30. Dr. Swakshar Ray, Research Scientist, ABB AB, Corporate Research, Vasteras, Sweden.
31. Dr. Edgar N Sanchez, Professor, University of Guadalajara, Jalisco, Mexico.
32. Dr. Ambra Sanino, Senior Research Scientist, ABB AB, Corporate Research, Vasteras, Sweden.
33. Dr. Scott Smith, Associate Professor, Electrical Engineering, University of Arkansas, Fayetteville, AK, USA.
34. Dr. Keith Stanek, Emeritus Professor of Electrical and Computer Engineering, Missouri S & T, USA.
35. Dr. Glaucio Taranto, Professor, Department of Electrical Engineering, Federal University of Rio de Janeiro, Brazil.

36. Dr. Edson H Watanabe, Professor, Department of Electrical Engineering, Federal University of Rio de Janeiro, Brazil.
37. Dr. Robert Woodley, Senior Scientist, 21st Century Systems, Inc, Fort Leonard Wood, MO, USA.
38. Dr. Donald Wunsch, Mary K. Finely Distinguished Professor of Electrical and Computer Engineering, Missouri S & T, USA.

I. RESEARCH FUNDING/GRANTS

I.1 Research Grants Awarded While at Missouri University of Science and Technology, Rolla, USA (from 2002, PI on 25/32)

1. SBIR: Detection and Mitigation of Electrical Faults in Medium Voltage DC (MVDC) Architectures, US Navy, Sept. 2009 to March 2010, \$21,000 (**PI**-Venayagamoorthy, **57.5%**).
2. A GPU- based High Performance Computing Cluster for Multiple Military Modeling Capabilities, Air Force Office of Scientific Research, May 2009 to May 2010, \$150,000 (Co-PI, 25%).
3. EFRI-COPN: Neuroscience and Neural Networks for Engineering the Future Intelligent Electric Power Grid, National Science Foundation, November 2008 to October 2012, \$2,000,183 (**PI**-Venayagamoorthy, **57.5%**)
4. GOALI: Neural Networks and Adaptive Critic Designs for Energy Security and Sustainability, National Science Foundation, May 2008 to April 2011, \$192,311 (**PI**, Venayagamoorthy, **100%**).
5. Advanced Digital Power Laboratory, Office of Naval Research, April 2008 to March 2009, \$488,997 (**PI**, Venayagamoorthy, **90%**).
6. Intelligent FACTS Controllers for Improved Utilization of Existing Power Generation and Transmission Assets, British Council Researcher Exchange Programme Awards, Jan-Dec. 2008, \$10,350, (**PI**, Venayagamoorthy, **100%**).
7. NUTC - Freight Optimization and Development in Missouri - Waterways and Ports Module, University Transportation Centre, June - December 2007, \$10,600 (Co-PI, Venayagamoorthy, **50%**).
8. STTR Phase II: Fault Diagnostics, Prognostics, and Self-Healing Control, 21CSI/US Navy, August 2008 – September 2009, \$150,152 (**PI**, Venayagamoorthy, **50%**).
9. Computer Go - A Proxy for Key Open Challenges and Opportunities in Computational Intelligence, National Science Foundation, August 2007 to July 2010, \$299,121 (Co-PI, Venayagamoorthy, **20%**).
10. GAANN: Advanced Computational Techniques and Real-Time Simulation Studies for the Next Generation Energy Systems, Department of Education, August 2007 to July 2010, \$511,524 (**PI**, Venayagamoorthy, **80%**).
11. Freight Optimization Study - Waterways and Ports Module - period: June - December 2007, \$21,200 (Co-PI, Venayagamoorthy, **50%**).
12. NSF CAREER: REU Supplement - Scalable Learning and Adaptation with Intelligent Techniques and Neural Networks for Reconfiguration and Survivability of Complex Systems - June - August 2007, \$6,000, ECCS # 0348221, (**PI**, Venayagamoorthy, **100%**).
13. SENSORS: REU Supplement - Approximate Dynamic Programming for Dynamic Scheduling and Control in Sensor Networks, National Science Foundation, June. 2007 - August 2007, \$6,000, ECCS #0625737 (**PI**, Venayagamoorthy, **100%**).
14. ONR YIP - The Intelligent All-Electric Ship Power System, Office of Naval Research, January 2007 to December 2009, \$405,000 (**PI**, Venayagamoorthy, **100%**).
15. A Digital Power Laboratory for Real-Time Simulation, Analysis and Testing of Advanced Power and Intelligent Control Systems, Office of Naval Research, April 2007 to December 2008, \$349,997 (**PI**, Venayagamoorthy, **85%**).

16. Modernizing the Undergraduate Power Engineering Curriculum with Real-Time Digital Simulation, National Science Foundation, January 2007 - December 2009, \$151,127 (**PI**, Venayagamoorthy, **70%**).
17. UMSAEP: Bio-Inspired Techniques for the Optimal Control of Power Systems, University of Missouri South African Education Program, January - December 2007, \$5,000 (**PI**, Venayagamoorthy, **100%**).
18. IREE - NSF CAREER: - Scalable Learning and Adaptation with Intelligent Techniques and Neural Networks for Reconfiguration and Survivability of Complex Systems, September 2006 - September 2007, \$25,000, ECCS # 0348221, (**PI**, Venayagamoorthy, **100%**)
19. STTR-Navy: Fault Diagnostics, Prognostics, and Self-Healing Control, September 2006 - September 2007, \$45,089 (**PI**, Venayagamoorthy, **50%**).
20. NSF CAREER: Graduate Research Supplement - Scalable Learning and Adaptation with Intelligent Techniques and Neural Networks for Reconfiguration and Survivability of Complex Systems - January - December 2007, \$30,996, ECCS # 0348221, (**PI**, Venayagamoorthy, **100%**).
21. SENSORS: REU Supplement - Approximate Dynamic Programming for Dynamic Scheduling and Control in Sensor Networks, National Science Foundation, June - August 2006, \$ 6,000, ECCS #0625737 (**PI**, Venayagamoorthy, **100%**).
22. NSF CAREER: REU Supplement - Scalable Learning and Adaptation with Intelligent Techniques and Neural Networks for Reconfiguration and Survivability of Complex Systems, June - August 2006, \$ 6,000, ECCS # 0348221, (**PI**, Venayagamoorthy, **100%**).
23. Neural Networks for Estimating and Compensating the Nonlinear Characteristics of Nonstationary Complex Systems, May 2006 to April 2009, \$70,650, ECCS # 0601521, (**PI**, Venayagamoorthy, **100%**).
24. Planning visit to Mexico: Intelligent Techniques to Operation, Control and Diagnosis of Power Plants and Power Systems Including FACTS Devices, National Science Foundation, November, 2005 to December 2006, \$ 6,501, (PI- Ronald Harley (Georgia Tech) Co-PI, Venayagamoorthy, **50%**), OISE #0519161. (This is travel grant and since the amount is small, no subcontract is made to Missouri S & T but Venayagamoorthy's travel is covered by Georgia Tech.)
25. SENSORS: Approximate Dynamic Programming for Dynamic Scheduling and Control in Sensor Networks, National Science Foundation, September 2005 to August 2009, \$ 240,000, ECCS #0625737 (**PI**, Venayagamoorthy, **100%**).
26. Integrated Control of Wind Farms, Facts Devices and the Power Network Using Neural Networks and Adaptive Critic Designs, National Science Foundation, August. 2005 to July 2009, \$ 130,004, ECCS # 0524183, (**PI**, Venayagamoorthy, **100%**).
27. UMSAEP: Computational Intelligence Techniques Applied to Modeling Herbivore Plant Interactions in African Savannas, January - December 2005, \$5,000, (**PI**, Venayagamoorthy, **100%**).
28. US-Army STTR: Fielded Agent-based Geo-Analysis Network (FAGAN), August, 2004 – February 2005, \$45,000 (Co-PI, Venayagamoorthy, **20%**).
29. Neural Network Based Wide Area Coordination and Local Control of Elements in a Large Complex System, National Science Foundation ECCS # 0400657, August 2004 – July 2007, \$ 230,000, (Co-PI, Venayagamoorthy, **50%**).

30. NSF CAREER: Scalable Learning and Adaptation with Intelligent Techniques and Neural Networks for Reconfiguration and Survivability of Complex Systems, June 2004 – May 2009, \$ 400,000, ECCS # 0348221, (**PI**, Venayagamoorthy, **100%**).
31. US-Nigeria Cooperative Research: Computational Intelligence Techniques for Reactive Power / Voltage Control of Large Power Systems, National Science Foundation, August 2003 – July 2005, \$ 30,000, INT # 0322894, (**PI**, Venayagamoorthy, **100%**).
32. U.S.-Brazil Collaborative Research: Feasibility Studies to Implement Neurocontrollers in Real Time in Brazil, National Science Foundation, August 2003 – July 2005, \$33,500, INT # 0305429, (**PI**, Venayagamoorthy, **80%**).
33. Swarm Intelligence for Generator Modeling and Control, University of Missouri Research Board Grant, June 2003 - May 2004, \$24,000, (**PI**, Venayagamoorthy, **100%**).
34. SGER: Intelligent Adaptive Control of Flexible Alternating Current Transmission System (FACTS) Devices in a Distributed Power Network Containing Turbogenerators, National Science Foundation, August 2002 to July 2004, \$69,796, ECS # 0231632, (Co-PI, Venayagamoorthy, **50%**).

I.2 Grants Awarded while at the Durban Institute of Technology, South Africa (1998 to 2001)

1. NRF THRIP-ESKOM (South Africa) Grant to set up the Real Time Power System Studies Centre at Durban Institute of Technology (DIT) – 2001/2002, South African Rand 2.5 million (Initial proposal grant holder (PI-equivalent) prior to leaving DIT, Venayagamoorthy, **100%**) - \$227,273.
2. Continually Online Trained ANNs for Turbogenerator Control, National Research Foundation (NRF, South Africa) grant, August 1998 - July 2001, South African Rand 222,400 (**PI**, Venayagamoorthy, **100%**) - \$27,800.
3. ANNs in Speech Processing, National Research Foundation (NRF, South Africa) grant, August 1998 - July 2001, South African Rand 168, 000 (**PI**, Venayagamoorthy, **100%**) - \$21,000.
4. Speaker Identification using ANNs, Telkom (South Africa) Centre of Excellence grant – 1999 to 2001, South African Rand 480,000, (Co-PI, Venayagamoorthy, **100%**) - \$60,000.
5. M L Sultan Technikon Research grant & Conference Grants – South African Rand 25,000 (**PI**, Venayagamoorthy, **100%**) - \$8,333.

J. OTHER TECHNICAL ACTIVITIES

1. General Chair for the IEEE Swarm Intelligence Symposium, St. Louis, MO, USA, September 21-23, 2008.
2. Program Chair for the International Joint Conference on Neural Networks, Atlanta, GA, USA, June 14-19, 2009.
3. Chair for the Symposium on Computational Intelligence for Sensor Networks, Part of the 3rd International Conference on Intelligent Sensors, Sensor Networks and Information Processing (ISSNIP07), Melbourne, Australia, December 3-6, 2007.
4. Program Chair for the INNS-IEEE Joint Conference on Neural Networks, Atlanta, GA, July 2009.
5. Guest Editor for International Neural Network Society Journal on Neural Networks, Vol. 16, no. 5-6, July 2003.
6. Technical Program Co-Chair for INNS-IEEE International Conference on Neural Networks, Portland, Oregon, July 20-24, 2003.
7. Technical Program Co-Chair for International Conference on Intelligent Sensing and Information Processing (co-sponsored by IEEE NNS and INNS), Chennai, India, January 4-7, 2004 (www.icisip.org).
8. Member of the Program Committee of the Intelligent Systems Application in Power System Conference, Kaohsiung, Taiwan, November 4 -8, 2007.
9. Member of the Program Committee of the Intelligent Systems Application in Power System Conference, Washington DC, November 6-10, 2005.
10. Member of the Program Committee of the International Workshop on Evolutionary Multiobjective Optimization Design and Applications (EMODA'05), Wroclaw, Poland, September 8-10, 2005.
11. Member of the Program Committee of the First International Conference on Natural Computation, Changsha, China, August 27-29, 2005.
12. Member of the Program Committee for INNS-IEEE International Conference on Neural Networks, Honolulu, Hawaii, May 12-17, 2002.
13. Chair of the Panel on Intelligent Techniques for Power System Distribution Control at the 2008 IEEE PES General Meeting, Pittsburgh, PA, USA, July 20-24, 2008.
14. Chair of the Panel on Intelligent Techniques for Power System Transmission Control at the 2007 IEEE PES General Meeting, Tampa, FL, USA, June 24-28, 2007.
15. Chair of the Panel on Intelligent Techniques for Power System Generation Control at the 2006 IEEE PES General Meeting, Montreal, Canada, June 18-21, 2006.
16. Session Chair – iREP Symposium, Charleston, SC, USA, August 19-24, 2007.
17. Session Chair – IEEE PES PowerAfrica 2007 Conference and Exposition in Africa, Johannesburg, South Africa, July 16-20, 2007.
18. Session Chair – IEEE PES Inaugural 2005 Conference and Exposition in Africa, Durban, South Africa, July 11-14, 2005.
19. Session Chair – NASA/DoD Conference, Washington DC, USA, June 29-July 1, 2005.
20. Session Chair – 2007, 2006 and 2005 IEEE Swarm Intelligence Symposium.

21. Session Chair, Plenary Talk (January 7, 2004) and Biometrics (January 6, 2004), International Conference on Intelligent Sensing and Information Processing (co-sponsored by IEEE NNS and INNS), January 4-7, 2004 (www.icisip.org).
22. Session Chair – IEEE IAS 2001, 2002, 2003, 2004, 2005 and 2006 Annual Meetings – Industrial Automation and Control Committee.
23. Session Chair – 2001 and 2002 INNS-IEEE International Conference on Neural Networks.
24. Session Chair – World Congress on Computational Intelligence, Vancouver, BC, Canada, July 2006.
25. Session Chair – 2007 IEEE/INNS International Joint Conference on Neural Networks, Orlando, FL, August 12-17, 2007.
26. Session Organizer – IAS 2003, 2004, 2005 and 2006 - Industrial Automation and Control Committee.
27. Special Session Organizer – Computational Intelligence for Power Systems organized at the 2006 IEEE World Congress on Computational Intelligence, Vancouver, BC, Canada, July 2006.
28. Special Session Organizer – Computational Intelligence for Electricity Supply and Distribution organized at the 2007 IEEE/INNS International Joint Conference on Neural Networks, Orlando, FL, August 12-17, 2007.

K. REVIEWER FOR FUNDING AGENCIES

1. National Science Foundation, USA.
2. National Research Foundation, South Africa.
3. University of Missouri Research Board, USA.

L. REVIEWER FOR JOURNALS

(a few to mention)

1. Automatica
2. IET Proceedings: Generation, Transmission and Distribution
3. IEEE Transactions on Control Systems Technology
4. IEEE Transactions on Energy Conversion
5. IEEE Transactions on Evolutionary Computation
6. IEEE Transactions on Industrial Applications
7. IEEE Transactions on Industrial Electronics
8. IEEE Transactions on Instrumentation and Measurement
9. IEEE Transactions on Neural Networks
10. IEEE Transactions on Power Delivery
11. IEEE Transactions on Power Electronics
12. IEEE Transactions on Power Systems
13. IEEE Transactions on Systems, Man and Cybernetics, Part B
14. IEEE Transactions on Systems, Man and Cybernetics, Part C
15. Integrated Computer Aided Engineering
16. International Journal of Control, Automation and Systems
17. International Journal of Neural Systems
18. International Journal of Power and Energy Systems
19. International Journal of Smart Engineering System Design
20. Journal of Engineering Applications of Artificial Intelligence
21. Journal of Control Engineering Practice
22. Transactions of the South African Institute of Electrical Engineers

M. REVIEWER FOR CONFERENCES

(a few to mention)

1. American Control Conference
2. Artificial Neural Networks In Engineering Conference (ANNIE)
3. IEEE Communication and Signal Processing Conference (COMSIG)
4. IEEE Conference on Decision and Control
5. IEEE Congress on Evolutionary Computation
6. IEEE Electric Ship Technologies Symposium (ESTS)
7. IEEE Industrial Application Society Conference
8. IEEE-INNS International Joint Conference on Neural Networks
9. IEEE PES General Meetings
10. IEEE Swarm Intelligence Symposium
11. Intelligent System Applications in Power Systems Conference
12. International Conference on Intelligent Sensing and Information Processing (ICISIP)
13. International Conference on Intelligent Sensors, Sensor Networks and Information Processing (ISSNIP)
14. Power System Computing Conference (PSCC)
15. World Congress on Computational Intelligence

N. SERVICE ECE DEPARTMENT AT THE MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY, ROLLA

1. Member of the ECE Graduate Studies Committee – since 2005.
2. Member of the Faculty search committee for Power Engineering Position – 2007.
3. Member of the Faculty search committee for Computer Engineering Position – 2004 & 2008.
4. Member of the Fred Finely search committee – 2005/2006.
5. Phonathon Nights – 2003, 2004, 2005, 2006.
6. Curriculum Development for New Courses – Adaptive Critic Designs (CpE458/EE458/SysEng458), Computational Intelligence (CpE358/EE367), Evolvable Hardware (CpE301/EE301/SysEng301), Real-Time Power System Simulation (EE301) and Computational Intelligence Methods in Electric Power (EE301).
7. Curriculum Development for the existing CpEng 111, 213.
8. Cp Eng PhD Qualifying Exams – in charge of the Computational Intelligence Emphasis Area.
9. Department Tours for Prospective Students.

O. SERVICE TO MST/UM SYSTEM

1. Chair of the Missouri S & T Public Occasions Committee – 2006/2007/2008.
2. Member of the University Public Occasions Committee – 2005/2006.
3. Organizing IEEE seminars through the St. Louis IEEE IAS and CIS Chapters – 2004 to date.

P. HONORS/AWARDS/RECOGNITIONS FOR VENAYAGAMOORTHY

(Received between 1999 and 2008)

1. Fellow of the South African Institute of Electrical Engineers – effective Feb. 18, 2009.
2. Elected to Board of Governors, International Neural Network Society – 2009 to 2011.
3. Fellow of the Institute of Engineering and Technology (British equivalent of the IEEE) – effective Sept. 15, 2008.
4. 2008 IEEE St. Louis Outstanding Educator Award.
5. 2008 Missouri S & T Faculty Excellence Award (recognizing excellence in teaching, research and service contributions to the Missouri S & T).
6. Second Prize for the paper titled “Hardware Implementation of a PSO based Online Design of an Optimal Excitation Controller” presented at the 2008 IEEE Swarm Intelligence Symposium, St. Louis, MO, USA.
7. Third Prize for the paper titled “Empirical Study of a Hybrid Algorithm Based on Clonal Selection and Small Population Based PSO” presented at the 2008 IEEE Swarm Intelligence Symposium, St. Louis, MO, USA.
8. IEEE PES Technical Committee Working Group Recognition Award – Working Group on Multi-Agent Systems – 2008.
9. Listed in the Who’s Who in the World, 2008 Edition.
10. Listed in the Who’s Who in Science and Engineering, 2008 Edition.
11. Listed in the Who’s Who in America, 2007-2009 Editions.
12. 2007 Missouri S & T Faculty Excellence Award (recognizing excellence in teaching, research and service contributions to the Missouri S & T).
13. 2007 Missouri S & T Commendation for Teaching Excellence.
14. 2007 IEEE IAS Small Outstanding Chapter - Chair of the St. Louis IEEE IAS Chapter.
15. 2007 Office of Naval Research Young Investigator Program Award.
16. Listed in the Who’s Who in America, 2007, 2008 & 2009 Edition.
17. 2006 IEEE St. Louis Section Outstanding Section Member.
18. 2006 Missouri S & T School of Engineering Teaching Excellence Award.
19. 2006 IEEE PES Walter Fee Outstanding Young Engineer.
20. 2005 Missouri S & T Faculty Excellence Award (recognizing excellence in teaching, research and service contributions to the Missouri S & T).
21. IEEE The Institute Member Profile – November 2005
22. 2005 South African Institute of Electrical Engineers Young Achiever’s Award presented by ABB PowerTech Transformers.
23. 2005 IEEE Industry Application Society’s Outstanding Young Member Award.
24. 2004 IEEE St. Louis Section Young Outstanding Engineer.
25. 2004 NSF CAREER Award: Faculty Early Career Development Program.
26. Nominated by the Missouri S & T for the Microsoft Faculty Fellowship Award in 2004.

27. 2003 International Neural Network Society Young Investigator Award Recipient for the *Outstanding Contributions in Applications of Neural Networks, Particularly in Power Systems*.
28. Recognized by Professor James Momoh on behalf of the National Science Foundation, Rensselaer Polytechnic Institute and Howard University for participation and contribution to the US-Africa research and education collaboration (promoting research and education in power, information technology, and environment), Howard University, Washington DC, November 6, 2003.
29. Second Best Prize Paper Award for the paper entitled "*Adaptive Critic Based Optimal Neurocontrol for Synchronous Generator in Power System Using MLP/RBF Neural Networks*" presented by the Industrial Automation and Control Committee of the IEEE IAS at the 2003 IAS Annual Meeting, Salt Lake City, USA.
30. Third Best Poster Paper Award of the Conference for the paper entitled "*Evolving Digital Circuits Using Particle Swarm*" at the IEEE-INNS IJCNN 2003.
31. Recognized by Professor James Momoh on behalf of the Howard University, Washington DC, USA with the leadership award at the International Conference on Power Systems Operation and Planning, Abuja, Nigeria, December 19, 2002.
32. 2001 Walter Karplus Summer Research Support Awardee, IEEE Computational Intelligence Society - One in four to receive globally.
33. Best Poster Paper Award in the Implementation Category for the paper entitled "*Experimental Studies with Continually Online Trained Artificial Neural Network Identifiers for Multiple Turbogenerators on the Electric Power Grid*" at the IEEE-INNS IJCNN 2001.
34. Best of Session Poster Paper Award at the IEEE-INNS IJCNN 2001 for the paper entitled "*Experimental Studies with Continually Online Trained Artificial Neural Network Identifiers for Multiple Turbogenerators on the Electric Power Grid*".
35. Best of Session Poster Paper Award at the IEEE-INNS IJCNN 2001 for the paper entitled "*A Committee of Neural Networks for Automatic Speaker Recognition*".
36. Best Poster Paper Award of the Conference for the paper entitled "*Experimental Studies with a Continually Online Trained Artificial Neural Network Controller for a Turbogenerator*" at the IEEE-INNS IJCNN 1999.
37. Best of Session Presentation Award at the IEEE-INNS IJCNN 1999 for the paper entitled "TD Methods Applied to Mixture of Experts for Learning 9×9 Go Evaluation Function".
38. Best of Session Poster Paper Award at the IEEE-INNS IJCNN 1999 for the paper entitled "*Experimental Studies with a Continually Online Trained Artificial Neural Network Controller for a Turbogenerator*".
39. Best of Session Poster Paper Award at the IEEE-INNS IJCNN 1999 for the paper entitled "*Fed-Batch Dynamic Fermentor Using Adaptive Critic Designs*".

(Received during Undergraduate Education between 1989 and 1994)

40. Award for the Best Student in Character and Learning at the Abubakar Tafawa Balewa University (ATBU) in the academic year 1992/1993.
41. Award for the Best Student in the School of Engineering and Engineering Technology at the Abubakar Tafawa Balewa University (ATBU) in the academic year 1992/1993.

42. Award for the Best Final Year Project in the School of Engineering and Engineering Technology at the Abubakar Tafawa Balewa University (ATBU) in the academic year 1992/1993.
43. Award for the Best Student in the Electrical Engineering Programme at the Abubakar Tafawa Balewa University (ATBU) in the academic year 1992/1993.
44. Ashaka Cement Co. Award for the Best Final Year Project in the Electrical Engineering Programme at the Abubakar Tafawa Balewa University (ATBU) in the academic year 1992/1993.
45. Award for the Best Student in the Telecommunications in the Electrical Engineering Programme at the Abubakar Tafawa Balewa University (ATBU) in the academic year 1992/1993.
46. Award for the Best Student in the Electronics in the Electrical Engineering Programme at the Abubakar Tafawa Balewa University (ATBU) in the academic year 1992/1993.
47. Award for the Best 500 Level Project in the Electrical Engineering Programme at the Abubakar Tafawa Balewa University (ATBU) in the academic year 1991/1992.
48. Vice Chancellor's Scholarship for the academic years - 1990/1991, 1991/1992 & 1992/1993.
49. Dean's List for the academic year – 1989/1990.

Q. HONORS/AWARDS/RECOGNITIONS FOR VENAYAGAMOORTHY'S STUDENTS

1. Second Prize at the 2008 IEEE Swarm Intelligence Symposium paper contest – Chuan Yan.
2. Third Prize at the 2008 IEEE Swarm Intelligence Symposium paper contest – Pinaki Mitra.
3. 2008 Sensor Applications Symposium Travel Grant – Shishir Bashyal (MS Student).
4. First Prize at the 2007 Myron Zucker Industry Applications Undergraduate Student Design – Parviz Palangpour, Curtis Parrot and Lisa Smith.
5. 2007 Walter Karplus Award, IEEE Computational Intelligence Society – Yusuf Yare (PhD student).
6. Second Prize at the 2007 IEEE PES Student Poster Contest– Swakshar Ray (PhD student).
7. Third Prize at the 2007 IEEE PES Student Poster Contest– Yamille del Valle (PhD student at Georgia Institute of Technology, Atlanta).
8. First Prize at the 2007 Missouri S & T Undergraduate Research Conference in Engineering Oral Presentation – Lisa Smith (BS student).
9. Third Prize at the 2007 Missouri S & T Graduate Poster Contest – Shishir Bashyal.
10. 2007 Missouri S & T Opportunities for Undergraduate Research Experience (OURE) Award - Ukoh Umah.
11. 2006 Myron Zucker Travel Award – Tridib Das.
12. 2006 Myron Zucker Travel Award – Swakshar Ray.
13. 2006 Walter Karplus Award, IEEE Computational Intelligence Society – Tridib Das (MS student).
14. 2006 IEEE CIS World Congress on Computational Intelligence Travel Award – Swakshar Ray (PhD student).
15. 2006 IEEE CIS World Congress on Computational Intelligence Travel Award – Tridib Das (MS student).
16. 2006 IEEE CIS World Congress on Computational Intelligence Travel Award – Parviz Palangpour (BS student).
17. 2006 Missouri S & T Opportunities for Undergraduate Research Experience (OURE) Award – Lisa Smith.
18. 2006 Missouri S & T Opportunities for Undergraduate Research Experience (OURE) Award – Parviz Palangpour.
19. 2006 Missouri S & T Opportunities for Undergraduate Research Experience (OURE) Award – Phillip Holloway.
20. 2005 Missouri S & T Opportunities for Undergraduate Research Experience (OURE) Award – Lisa Smith.
21. 2005 Missouri S & T Opportunities for Undergraduate Research Experience (OURE) Award – Parviz Palangpour.
22. 2004 Missouri S & T Opportunities for Undergraduate Research Experience (OURE) Award – Phillip Moore.
23. Second Prize at the 2006 IEEE PES Student Poster Contest– Yamille del Valle (PhD student at Georgia Institute of Technology, Atlanta).

24. First Prize at the 2006 IEEE PES Student Poster Contest– Wei Qiao (PhD student at Georgia Institute of Technology, Atlanta).
25. Third Prize at the 2006 Missouri S & T Undergraduate Research Conference in Engineering Oral Presentation – Lisa Smith (BS student).
26. First Prize at the 2006 Missouri S & T Undergraduate Research Conference in Engineering Oral Presentation – Parviz Palangpour (BS student).
27. Fourth Prize at the 2005 Intelligent Systems Application in Power Systems Student Paper Contest – Swakshar Ray.
28. 2005 Outstanding Electrical and Computer Engineering Graduate Student – Swakshar Ray.
29. 2005 Walter Karplus Award, IEEE Computational Intelligence Society – Swakshar Ray (PhD student).
30. 2004 Myron Zucker Travel Award – Swakshar Ray.
31. IEEE CIS 2004 Congress on Evolutionary Computation Travel Award – Sheetal Doctor (MS student).
32. Third Prize at the 2003 IEEE-INNS International Joint Conference on Neural Networks Student Paper Contest - Venu Gudise.
33. IEEE CIS 2003 International Joint Conference on Neural Networks Travel Award - Kalyani Padha (MS student).
34. 2002 Myron Zucker Travel Award - Kalyani Padha (MS student).
35. 2002 Myron Zucker Travel Award - Wenxin Liu (PhD student).

R. LANGUAGE PROFICIENCY

1. English – Speak, read & write.
2. Tamil – Speak.
3. Hausa – Speak.

S. COUNTRIES WHERE PRESENTATIONS/TUTORIALS/WORKSHOPS/LECTURES/ SEMINARS WERE PRESENTED BY VENAYAGAMOORTHY IN PERSON

1. Australia
2. Brazil
3. Canada
4. Cape Verde
5. Chile
6. Cyprus
7. England
8. Finland
9. France
10. Germany
11. Ghana
12. Greece
13. Hong Kong (China)
14. Hungary
15. India
16. Ireland
17. Italy
18. Mexico
19. New Zealand
20. Nigeria
21. Romania
22. Scotland
23. Singapore
24. South Africa
25. South Korea
26. Spain
27. Sweden
28. Switzerland

29. Taiwan
30. USA