B.K. Ghosh

Name and Title

Bijoy Kumar Ghosh
Brooks Regents Professor of Mathematics and Statistics
Director of the Laboratory for BioCybernetics and Intelligent Systems

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Date and Place of Birth

March 5, 1956, Kolkata, India

Education

B.Tech in Electrical Engineering, BITS Pilani, Rajasthan, India, '77.
M.Tech in Electrical Engineering, IIT Kanpur, India, '79.
PhD in Engineering, Harvard University, Cambridge, MA, USA, '83.

Current Research Interest

[1] CPS: Agricultural Problems
[2] Learning Control Problems in the Rehab.
[3] Multiagent Sensing and control/Distributed Optimization
[4] Nanomanipulation, Cell Dynamics, Mechanical Modeling as a Biomarker

Awards

American Automatic Control Council's Donald Eckman Award in 1988
Citation: *"In recognition of his outstanding contributions in the field of Automatic Control."*

United Nations Development Program's TOKTEN Consultant in 1993.

Japan Society for the Promotion of Science (JSPS) Invitation Fellowship Program for research in Japan in 1997.

Fellow of the Institute of Electronics and Electrical Engineering (IEEE) in 2000.
Citation: *"For fundamental contributions to systems theory with applications to robust control, vision and multi sensor fusion."*

Fellow of the International Federation of Automatic Control (IFAC) in 2014.
Citation: *"For seminal contributions to dynamic modelling in machine vision, biology and biomedical science."*

Chinese Academy of Sciences Fellowship Program (President's International Fellowship Initiative) for research and lecture tour in China in 2016 and 2017.

Indian Institute of Technology Guest Faculty Program (SGR International distinguished faculty) to visit Electrical Engineering Dept. at IIT Kharagpur in 2016.

Fellow of South Asia Institute of Science and Engineering (SAISE) in 2016.

Jefferson Science Fellow, 2017 – 2018, jsf@nas.edu (under consideration)

Sponsored Projects

NSF Grant ECS - 8414220 "A geometric approach to fault tolerant system design," 5/15/1985 to 10/31/1987, $48,000.00, P.I.

NSF Grant ECS - 8617978 "Parametrization problems in robust stabilization, identification and adaptive control of linear dynamical systems," 7/1/1987 to 12/31/1989, $59,000.00, P.I.

U.S. Department of Energy Grant $DE-FG02-90ER14140$ "Dynamical systems with internal structure: A new approach to the problem of analysis and robust design of a time varying system," 7/15/1990 to 7/14/1993, $218,376.00, P.I.

U.S. Department of Energy Grant $DE-FG02-90ER14140$ "Visually guided control systems: A new generation of system analysis and design," 7/15/1993 to 7/14/1996, $236,999.00, P.I.

U.S. Department of Energy Grant $DE-FG02-90ER14140$ "Visionics: An integrated approach to analysis and design of intelligent machines," 7/15/1996 to 7/14/1999, $279,485.00, P.I.

South Western Bell Foundation Computer/Mathematics Collaboration "Image segmentation via multiresolution analysis," 1993-1996 Summer Salary and 1 student ($15,000.00 each year)

NSF Grant ECS - 9720357 "Knowledge based action planning and control problems in Engineering and Biology," 10/1/1997 to 9/30/2000, $ 706,400.00, P.I.

NSF Grant ECS - 9700334 "Engineering Research Equipment: Maxsparc Vision System," 9/1/1997 to 7/30/1998, $34,355.00, P.I.

NSF Grant ECS - 9976174 "Perception and Control: A dynamic perspective," 8/1/1999 to 7/30/2002, $240,000.00, P.I.

NSF Grant EIA - 0218186 "How is information coded in turtle visual cortex?" 10/1/2002 to 9/30/2005, $176,926.00,Co-P.I.

NSF Grant 0307212 "FIBR Planning: A systems approach to study redox regulation of functions of photosynthetic organisms," 03/15/2003 to 03/14/2004, $50,000.00,Co-P.I.

NSF Grant ECS - 0323693 "Feedback control of visual appearance with maximally sensitive sensors for decentralized event detection and security," 08/01/2003 to 07/31/2006, $260,000.00, P.I.

NSF Grant 0425749 "FIBR: A systems approach to study redox regulation of functions of photosynthetic organisms," 09/01/2004 to 08/31/2009, $1,038,158.00, Co-P.I.

Battelle Pacific/DOE project 05/01/2005 to 04/30/2006, $81,687.00, Co-P.I.

NSF Grant 0523983 "BIC: Pattern generating circuits for computation and control" 07/15/2005 to 07/14/2008, $400,000.00, P.I.

NSF Grant 1029178 "ECCS: Head Eye Coordination, Motion Detection and Feedback Control with Counters" 10/01/2010 to 09/30/2014, $345,560.00, P.I.

Professional Affiliations

Member of the Collaborative Braintrust Consulting Firm, 1130 K Street, Suite 150, Sacramento, CA 95814.

Alternate Member of the 2014 IEEE Fellow Review Committee.

Member of the 2013 IEEE Fellow Review Committee.

Member of the 2010 − 11 Math Education Peer Review Committee for the Fulbright Specialist Program.

Past External Committee Member, IEEE-USA's Medical Technology Policy Committee. 2009 − 2013

Alternate Member of the 2010 IEEE Fellow Review Committee.

Past Liaison Representative, Associate Editor of the Editorial Board of "The IEEE/ACM Trans. Computational Biology and Bioinformatics." 2009 − 2014

Past Member of the Editorial Board of "The Journal of Control Science and Engineering."

Past Member of the Board of Governors of **IEEE Control Systems Society, Jan. 2004– Dec. 2006.**

Past Committee Chair for the *Technical Committee on SGMA* **'Sensor Guided Manipulation in Automation'** under the 'IEEE Robotics and Automation Society.'

Past Committee Chair for the *Technical Committee on* **'BioSystems & Control'** under the 'IEEE Control Systems Society.'

Past Associate Editor of IEEE Transactions on Automatic Control under the 'IEEE Control Systems Society.'

Positions

Dick and Martha Brooks Regents Endowed Professor of Mathematics and Statistics, Texas Tech University, Lubbock. Jan. 2007 – present

Past academic positions at Washington University, St. Louis, Missouri.

- Assistant Professor in Systems Science and Mathematics, Sept. 1983 – June 1986.
- Associate Professor in Systems Science and Mathematics, July 1986 – June 1995.
- Professor in Systems Science and Mathematics, July 1995 – June 2002.
- Professor in Electrical and Systems Engineering, July 2002 – Dec. 2006.
- Affiliated Professor of Bio Medical Engineering, July 2000 to Dec. 2006.
- Director of the Center for BioCybernetics and Intelligent Systems, May 1998 to Dec. 2006.

Past and present visiting positions

- Visiting Professor of Electrical Engineering, Yale University, New Haven, CT 06520, Jan. 1, 2001 – May 15, 2001.
- Visiting Professor at Dipartimento di Elettronica e Informatica, Universita di Padova, Padova, Italy, June, 2001.

- Visiting Professor at the Institut Mittag-Leffler, The Royal Academy of Sciences, Djursholm, Sweden, March 9 – April 6, 2003.
- Visiting Professor at the Royal Institute of Technology, Sweden, May 1 – May 31, 2005.
- Visiting Professor of Information Sciences Department, Tokyo Denki University, Saitama, Japan, 1997 – 2007.
- Visiting Professor at the Technical University of Munich, Germany, May 2010.
- Visiting Professor at the Academy of Mathematics and Systems Science, Institute of Systems Science, Chinese Academy of Sciences, 100190 Beijing, China, May, 2012.
- Visiting Professor of Mechanical Engg., Boston University, MA, USA, Sept. 1 – Dec. 31, 2014.
- Visiting Professor of State Key Laboratory of Robotics, Shenyang Institute of Automation, Chinese Academy of Sciences, 110016 Shenyang China, June 6 – July 31, 2016.
- Visiting Professor of Electrical Engineering, Indian institute of Technology, Kharagpur, West Bengal, India, Sep 26 – Oct 20, 2016.

PhD thesis of graduate students at Washington Univ., St. Louis

1. P. Mensah Degeneration of Linear Multivariable Systems Under High Gain and Dynamic Compensation, 1989.
2. P. Bouthellier Analysis and Design of Discrete Time, Linear Time Varying Systems, 1990.
3. Y.T. Wu Some New Problems in Perspective System Theory, 1991.
4. M. Jankovic Observer Design and Identification of Nonlinear Systems, 1992.
5. M. Lei Vision Based Robotic Tracking and Manipulation, 1994.
6. E. P. Loucks A Perspective Systems Approach to Motion and Shape Estimation Problems in Machine Vision, 1994.
7. J. Zhou New Methods in Image Segmentation, Feature Extraction and Matching, 1995.
8. Zhenyu Yu Vision Guided Robot Motion Planning and Control, 1995.
9. Di Xiao Multisensor Based Robotic Manipulation in Uncalibrated Environments, 1997
10. Haiyan Wang Deformable Models for Image Processing, 1999.
11. Mingqi Kong Motion Estimation using Spatio-Temporal Filtering, 1999.
12. Li Zhang Map Building, Localization and Structure Estimation Problems in Mobile Robotics, 2000.
13. Zoran Nenadic Signal Processing, Computation and Estimation in Biological Neural Networks, 2001.
14. Satoru Takahashi Analysis of Motion and Shape Parameters and Synthesis of Boundaries, 2001 (jointly with H. Inaba).
15. Ping Liu Appearance Methods of Solving Recognition and Estimation Problems in Robotics, 2004.
16. Ashoka Polpitiya Geometry and Control of Human Eye Movements, 2004.
17. Xiuxia Du Modeling and Signal Processing Problems in Turtle Visual Cortex, 2005.
18. Joseph Jenner Bioinspired Encoding of Images with Spatiotemporal Cortical Activity Waves and Information Recovery via Dynamical Modelling, 2006.
19. Wenxue Wang Dynamics of the Turtle Visual Cortex and Design of Sensor Networks, 2006.
20. Thanura Elvitigala Modeling and Identification of Differentially Regulated Genes using Transcriptomics and Proteomics Data, May 2009.

PhD thesis of graduate students at Texas Tech. Univ., Lubbock

1. Mervyn P. B. Ekanayake Decoding the Speed and Motion Direction of Moving Targets using a Turtle Retinal Patch Model, Aug. 2011.
2. Indika B. Wijayasinghe Coordination and Control of Human Eye and Head: A Classical Mechanics Approach, Aug. 2013.
3. Jennifer Emerson Fitting Control Theoretic Smoothing Splines to Very Large Data Sets, May 2015.
4. Takafumi Oki Asymptotic Stabilization and Tracking Problems in BioMechanics, August 2016.
5. Rangana Jayawardhana Learning Control in the Rehab, Dec. 2017.

Professional Activities:

Conference related activities

1. General Co-Chair for *IEEE Conference on Multisensor Fusion and Integration for Intelligent Systems MFI2001,* August 20-22, 2001, Baden-Baden, Germany.

2. Organizing Committee Member for *SIAM Life Sciences Conference,* September 23-26, 2001, Boston, USA.

3. Tutorial Workshop CoChair for *2001 IEEE/RSJ International Conference on Intelligent Robots and Systems,* October 29-November 2, 2001, Outrigger Wailea Resort, Maui, Hawaii, USA.

4. Member of the technical program committee for *The* 5^{th} *International Conference on Information Fusion,* Annapolis, Maryland, July 7-11, 2002.

5. Member of the Advisory Committee for *The* 22^{nd} *Chinese Control Conference,* Yichang, China, July 21–25, 2003.

6. Member of the Advisory Committee for *The* 23^{rd} *Chinese Control Conference,* Wuxi, China, August 10–13, 2004.

7. Member of the Program Committee for FUSION 2004, *The* 7^{th} *International Conference on Information Fusion*, Stockholm, Sweden, June 28 – July 1, 2004.

8. Member of the International Program Committee for *The* 10^{th} *IASTED International Conference on ROBOTICS AND APPLICATIONS RA* 2004, Honolulu, Hawaii, USA, August 23 – 25, 2004.

9. Member of the program committee for American Control Conference, 2005.

10. Member of the international program committee for FUSION 2008, *The* 11^{th} *International Conference on Information Fusion*, Cologne, Germany, June 30^{th} – July 3^{rd}, 2008.

11. Member of the international program committee for Mathematical Theory of Networks and Systems, Budapest, Hungary, 2010.

12. Member of the international program committee for FUSION 2010, *The* 13^{th} *International Conference on Information Fusion*, Edinbergh, U.K., July 26^{th} – July 29^{th}, 2010.

13. Member of the international program committee for FUSION 2012, *The* 15^{th} *International Conference on Information Fusion*, Singapore, July 9^{th} – July 12^{th}, 2012.

14. Member of the international program committee for FUSION 2013, *The* 16^{th} *International Conference on Information Fusion*, Istanbul, Turkey, July 9^{th} – July 12^{th}, 2013.

15. Reviewer for 6^{th} Annual Dynamic Systems and Control Conference, Oct. 21^{st} – 23^{rd}, 2013, Stanford University, Munger Center, Palo Alto, CA.

16. Member of the program committee for 2013 IEEE International Workshop on Genomic Signal Processing and Statistics, Nov. 17^{th} – 19^{th}, 2013, Houston, TX, USA.

17. Member of the international program committee for FUSION 2014, *The* 17^{th} *International Conference on Information Fusion*, Salamanca, Spain, July 7^{th} – July 10^{th}, 2014.

18. International Advisory Committee Member, *The* 47^{th} *ISCIE International Symposium on Stochastic Systems Theory and its Applications*, Honolulu, Hawaii, USA, Dec. 5^{th} – 8^{th}, 2015.

19. Member of the International Program Committee, *The* 3^{rd} *International Symposium on Computational and Business Intelligence (ISCBI15)*, Bali, Indonesia, Dec. 7^{th} – 8^{th}, 2015.

20. Member of the International Program Committee, 2^{nd} *International Workshop on Advances in Image Processing, Computer Vision and Pattern Recognition (IWICP2015)*, Trivandrum, India, Dec. 16^{th} – 19^{th}, 2015.

21. International Advisory Committee Member, *The* 10^{th} *IEEE International Conference on Industrial and Information Systems 2015*, Kandy, Sri Lanka, India, Dec. 17^{th} – 20^{th}, 2015.

22. Chief Guest at the Opening Ceremony, 2015 IEEE 10^{th} International Conference on Industrial and Information Systems (ICIIS'15), Faculty of Engineering, Univ. of Peradeniya, Peradeniya, Sri Lanka, Dec. 19, 2015.

23. International Advisory Committee Member, *The* 48^{th} *ISCIE International Symposium on Stochastic Systems Theory and its Applications*, Fukuoka, Japan, Nov. 4^{th} – 5^{th}, 2016.

24. International Advisory Committee Member, *The* 5^{th} *International Conference on BioInformatics and Computational Biology*, ICBCB 2017, Hongkong, China, January 6^{th} – 8^{th}, 2017.

Workshops and Tutorials organized in conferences and universities

1. Sensor-Referenced Control and Planning: Theory and Applications, CDC'95 IEEE International Conference on Decision and Control, New Orleans, USA, 1995 (Organizers: B. K. Ghosh, T. J. Tarn and N. Xi)

2. Dynamics and Control Problems in Vision, MTNS'96 Mathematical Theory of Networks and Systems, Saint Louis, USA, 1996 (Organizers: B. K. Ghosh and C. Martin)

3. Event Driven Sensing, Planning and Control of a Robotic System: An Integrated Approach, IROS'96 IEEE/RSJ International Conference on Intelligent Robots and Systems, Osaka, Japan, 1996 (Organizers: B. K. Ghosh, T. J. Tarn and N. Xi)

4. Cortical Dynamics: Its Turtles from here on down, CNS'99 Computational Neuroscience Meeting, Pittsburgh, USA, 1999 (Presenters: K. Robbins and B. K. Ghosh).

5. Biological Approaches to Control system Problems, ACC'00 American Control Conference, Chicago, USA (Organizers: P. Ulinski and B. K. Ghosh)

6. Motor Control Problems in the Brain, at the CDC'00 IEEE International Conference on Decision and Control, Sydney, Australia (Organizers: H. Kimura and B. K. Ghosh)

7. Modeling of RNA Expressions, Tutorial presented at the American Control Conference, Portland, Oregon, USA, 8^{th} June, 2005. (with A. Polpitiya)

8. A celebration of the field of Systems and Control – Symposium on the occasion of two milestones in the careers of C. I. Byrnes and A. Lindquist, Stockholm, Sweden, 9^{th} – 11^{th}, Sept. 2009 (co-organized by X. Hu, U. Jönsson and B. Wahlberg)

Plenary Presentations

1. Dynamic modeling and control with a population of cells: A neuro-biological perspective, 20^{th} Chinese Control Conference, Dalian, China, Aug. 10, 2001.

2. Visual appearance modeling, perception and control with retinal and cortical signal processing, 5^{th} International Conference on Information Fusion, Annapolis, Maryland, July 7-11, 2002.

3. Dynamic network models with neurons and genes, IEEE International Symposium on Intelligent Control, The Grand Hotel, Taipei, Taiwan, Sept. 2, 2004.

4. Signal processing and control in Biological systems, 6^{th} Asian Control Conference, Inna Grand Bali Beach Hotel, Bali, Indonesia, July 20, 2006.

5. Modeling problems in animal vision and gaze control, Sunahara Memorial Lecture at the 40^{th} International Symposium on Stochastic Systems Theory and its Applications (SSS'08), Kyoto University, Nov. 14, 2008.

6. Control Problems from Multiocular Mechanics, The 47^{th} International Symposium on Stochastic Systems Theory and its Applications (SSS'15), Waikiki Beach Marriott Resort and Spa, Honolulu, Hawaii, USA, Dec. 6, 2015.

7. Emergent Problems in Systems and Control: A Mathematical Perspective, 2015 IEEE 10^{th} International Conference on Industrial and Information Systems (ICIIS'15), Faculty of Engineering, Univ. of Peradeniya, Peradeniya, Sri Lanka, Dec. 19, 2015.

8. Visually generated activity waves in the cortex: A neural viewpoint, IEEE TechSym 2016, Gargi Hall, Srinivasa Ramanujan Complex, 10:30 am, Indian Institute of Technology, Kharagpur, West Bengal, India, Oct. 1, 2016.

9. Systems and Control Problems in Medical Rehabilitation, Fifth International Conference on Bio-informatics and Computational Biology (ICBCB 2017), Hongkong, China, January 6-8, 2017.

10. To be decided, 2017 International Conference on Mechanical and Mechatronics Engg., Bangkok, Thailand, March 26-27, 2017.

11. To be decided, IEEE ICMA 2017, IEEE International Conference on Mechatronics and Automation, Takamatsu, Japan, August 6-9, 2017.

Invited sessions organized in conferences

1. Systems and Control Problems in Machine Vision, 32^{nd} Annual Allerton Conference on Communication, Control and Computing, 1994 (with R. Sharma, Univ. of Illinois at Urbana-Champaign, Urbana, USA.)

2. Identification and Control problems in Computer Vision, NOLCOS '95, Symposium on Nonlinear Control Systems Design, Tahoe City, California, USA, 1995. (with C. Martin, Texas Tech. Univ., Lubbock, Texas)

3. Sensor-Referenced Planning and Control of Robotic Systems: Autonomous vs. Telerobotic, IROS'95 IEEE/RSJ International Conference on Intelligent Robots and Systems at Pittsburgh, Pennsylvania, USA, 1995. (with N. Papanikolopoulos, Univ. of Minnesota, Minneapolis, USA and N. Xi, Washington Univ., St. Louis, USA)

4. Systems and Control Problems in Autonomous Vision and Robotic Systems, CDC'95 34^{th} IEEE Conference on Decision and Control, New Orleans, USA, 1995. (with G. Picci, Univ. of Padova, Italy and N. Xi, Washington Univ., St. Louis, USA)

5. Theory and Applications of Deformable Models in Machine Vision, MTNS'96 Mathematical Theory of Networks and Systems, St. Louis, USA, 1996. (with G. Picci, Univ. of Padova, Italy)

6. System Theoretic Methods in Machine Vision, MTNS'96 Mathematical Theory of Networks and Systems, The Ritz-Carlton, Saint Louis, Missouri, USA, 1996. (with G. Picci, Univ. of Padova, Italy)

7. Modelling and Control of Hybrid Systems, MTNS'96 Mathematical Theory of Networks and Systems, St. Louis, USA, 1996. (with L. Dai, Washington Univ., St. Louis, USA)

8. Modelling and Design Methods for Nonlinear Systems with Applications in Robotics and Visionics, The 13^{th} IFAC World Congress, San Francisco, USA, 1996. (with C. Martin, Texas Tech Univ., Lubbock, USA and N. Xi, Washington Univ., St. Louis, USA)

9. Estimation, Control and Filtering Problems in Computer Vision, CDC'97 36^{th} IEEE Conference on Decision and Control, San Diego, USA, 1997. (with G. Picci, Univ. of Padova, Italy)

10. Dynamic Vision and Control I and II, MTNS'98 Mathematical Theory of Networks and Systems, Padova, Italy,1998. (with S. Soatto, Washington Univ., St. Louis, USA)

11. Sensor Guided Control and Learning with Applications, The 14^{th} IFAC World Congress, Beijing, China, 1999. (with W. P. Dayawansa, Texas Tech Univ., Lubbock, USA)

12. Dynamic Problems in Vision and Motor Control, CDC'99 38^{th} IEEE Conference on Decision and Control, Phoenix, USA, 1999. (with W. P. Dayawansa and L. Schovanec, Texas Tech Univ., Lubbock, USA)

13. Modeling and Control of Physiological Systems, CDC'00 39^{th} IEEE Conference on Decision and Control, Sydney, Australia, 2000. (W. P. Dayawansa and L. Schovanec, Texas Tech Univ., Lubbock, USA)

14. Neural and Bio-Mechanical Modeling in Life Science, ACC'01 American Control Conference, Arlington, Virginia, USA, 2001 (with D. W. Repperger)

15. Computational Models of Neural Functions in the Brain, SIAM Life Sciences Conference, Boston, USA, 2001.

16. New Frontiers in Intelligent Sensing and Control, IROS'01 IEEE/RSJ International Conference on Intelligent Robots and Systems, Maui, Hawaii, USA, 2001. (with X. Hu, Royal Institute of Technology, Sweden)

17. A New Perspective in Biological Signal Processing and Motor Control I & II, CDC'01 40^{th} IEEE Conference on Decision and Control, Orlando, USA, 2001. (with H. Kimura, Univ. of Tokyo, Tokyo, Japan)

18. Dynamic Modelling in Biological Systems, The 15^{th} IFAC World Congress on Automatic Control, Barcelona, Spain, 2002. (with C. Martin, Texas Tech. Univ., Lubbock, USA)

19. Network Based Control in Biology and Engineering, CDC'04 43^{rd} IEEE Conference on Decision and Control, 2004, Bahamas, USA. (with C. Martin, Texas Tech. Univ., Lubbock, USA)

20. Modelling and Control of Complex Interaction: A Network Approach, CDC'09, 48^{th} IEEE Conference on Decision and Control, 2009, Shanghai, China. (with C. Martin, Texas Tech. Univ., Lubbock, USA)

21. New Results on Computation and Control, MTNS'10, 19^{th} International Symposium on Mathematical Theory of Networks and Systems, ELTE University Congress Center, Budapest, Hungary, 5 – 9 July, 2010.

22. Modelling and Control of Bio Mechanical Systems, 49^{th} IEEE Conference on Decision and Control, Dec. 15–17, 2010, Atlanta, USA.

23. Dynamic Models of Complex Network, 49^{th} IEEE Conference on Decision and Control, Dec. 15–17, 2010, Atlanta, USA. (with C. Martin and A. Chakraborty)

Selected Publications:

Books

1. Control in Robotics and Automation: Sensor Based Integration, Academic Press, 1999. (coedited with T. J. Tarn, Ning Xi)

2. Emergent Problems in Nonlinear Systems and Control, Lecture Notes in Control and Information Sciences, 393, Springer Verlag Berlin Heidelberg, 2009. (coedited with Clyde F. Martin and Yishao Zhao)

3. Three Decades of Progress in Control Sciences, Springer Verlag Berlin Heidelberg, 2010. (coedited with Xiaoming Hu, Ulf Jönsson and Bo Wahlberg)

4. Geometric Methods in Visual Sensing, Springer Verlag, Applied Sciences and Engg., Berlin, Heidelberg, 2016. (Contact Person: holger.schaepe@springer.com)

Edited Special Issues

1. Modelling Issues in Visual Sensing, Special issue of the Journal of Mathematical and Computer Modelling, vol. 24, no. 5/6, Sept. 1996, Elsevier Science Ltd, Oxford. (with N. Papanikolopoulos)

2. Control and Systems Analysis in Medicine, Special issue of the IEEE Trans. Automatic Control, vol. 43, no. 6, June 1998. (with Clyde Martin)

3. The Brain as Controller: Neuroscience and Biomechanics, Special Issue of the IEEE Control Systems Magazine, vol. 21, no. 4, Aug. 2001 (with Jiping He).

4. Biochemical Networks and Cell Regulation, Special Issue of the IEEE Control Systems Magazine, vol. 24, no. 4, Aug. 2004. (with Olaf Wolkenhauer and Kwang-Hyun Cho)

5. Recent Developments in Logical Networks and its Application, IET Control Theory and Applications, 2017. (with Jinde Cao, Daizhan Cheng, Daniel W. C. Ho, Haitao Li, Jianquan Lu)

Papers in Archival Journals and Edited Collections

Multivariable Systems and Robust Control

1. "Simultaneous Stabilization and Simultaneous Pole-Placement by Non switching Dynamic Compensation," IEEE Trans. on Aut. Cont., vol. AC-28, no. 6, June 1983, pp. 735–741. (with C. I. Byrnes)

2. "A Robust Reliable Stabilization Scheme for Single Input, Single Output Systems Using Transcendental Methods," Systems and Control Letters 5, Nov. 1984, pp. 111–115.

3. "Some New Results on the Simultaneous Stabilizability of a Family of Single Input, Single Output Systems," Systems and Control Letters 6, June 1985, pp. 39–45.

4. "An Approach to Simultaneous System Design, I. Semialgebraic Geometric Methods," SIAM J. Cont. and Opt., vol. 24, no. 3, May 1986, pp. 480–496.

5. "Simultaneous Partial Pole Placement: A New Approach to Multimode System Design," IEEE Trans. on Aut. Cont., vol. AC-31, no. 5, May 1986, pp. 440–443.

6. "Transcendental and Interpolation Methods in Simultaneous Stabilization and Simultaneous Partial Pole Placement Problems," SIAM J. Cont. and Opt., vol. 24, no. 6, Nov. 1986, pp. 1091–1109.

7. "A Hybrid Parametrization of Linear Single Input Single Output Systems," Systems and Control Letters 8, 1987, pp. 231–239, (with W. P. Dayawansa).

8. "Simultaneous Identification of Linear Systems: A Heuristic Approach," Systems and Control Letters 9, 1987, pp. 317–322, (with Y. Lirov).

9. "An Approach to Simultaneous System Design, II. Nonswitching Gain and Dynamic Feedback Compensation by Algebraic Geometric Methods," SIAM J. Cont. and Opt., vol. 26, no. 4, July 1988, pp. 919–963.

10. "Differential Geometric Methods in Hybrid Parametrization Problems," SIAM J. Cont. and Opt., vol. 26, no. 5, Sept. 1988, pp. 1149–1174. (with W. P. Dayawansa)

11. "Convergence Analysis of Linear Dynamic Systems by High Gain and High Dynamic Compensation," Int. J. Control, vol. 52, no. 5, 1990, pp. 1147–1166. (with P. Mensah)

12. "Simultaneous Coefficient Assignment of Discrete Time, Multi-Input Multi-Output, Linear Time Varying Systems - A New Approach to Compensator Design," SIAM J. Cont. and Opt., vol. 31, no. 5, Nov. 1993, pp. 1438–1461. (with P. Bouthellier)

13. "Stabilization of Discrete-Time Nonlinear Systems by Smooth State Feedback," Systems and Control Letters, 21, 1993, pp. 255–263, (with C. I. Byrnes and W. Lin)

14. "A New Robust Control for a Class of Uncertain Discrete-Time Systems," IEEE Trans. on Aut. Cont., vol. 42, no. 9, pp. 1252–1254, Sept. 1997. (with H. Wang).

15. "Sufficient Conditions for Generic Simultaneous Pole Assignment and Stabilization of Linear MIMO Dynamical Systems," IEEE Trans. on Aut. Cont., vol. 45, no. 4, April 2000, pp. 734–738. (with A. Wang).

16. "On Minimal Degree Simultaneous Pole Assignment Problems," Fourth special issue on linear systems and control, Linear Algebra and its Applications, vol. 351-352, 2002, pp. 411–433. (with A. Wang)

17. "Collision Free Path Planning in a Dynamic Environment: Semantic Control Approach," Simulation, vol. 51, no. 5, Nov. 1988, pp. 196–201. (with E. Y. Rodin, F. Golenko and R. Weil).

18. "Automated Learning by Tactical Decision Systems in Air Combat," Computer and Math. Applic., vol. 18, no. 1-3, pp. 151–160, 1989 (with Y. Lirov and E. Y. Rodin).

19. "Perspective Problems in System Theory and its Application to Machine Vision" Journal of Mathematical Systems, Estimation and Control, vol. 4, no. 1, 1994, pp. 3–38. (with Y. T. Wu and M. Jankovic)

20. "A Generalized Popov-Belevitch-Hautus Test of Observability," IEEE Trans. on Aut. Cont., vol. 40, no. 1, Jan. 1995, pp. 176–180. (with J. Rosenthal)

21. "Visually Guided Ranging from Observations of Points, Lines and Curves via an Identifier Based Nonlinear Observer," Systems and Control Letters, 25, 1995, pp. 63–73. (with M. Jankovic)

22. "A Perspective Theory for Motion and Shape Estimation in Machine Vision," SIAM J. Cont. and Opt., vol. 33, no. 5, Sept. 1995, pp. 1530–1559. (with E. P. Loucks)

23. "A Necessary and Sufficient Condition for the Perspective Observability Problem," Systems and Control Letters, 25, 1995, pp. 159–166. (with X. Wang, C. Martin and W. P. Dayawansa)

24. "Gradient Based Algorithms for Estimation Problems in Machine Vision,"IEEE Trans. on Aut. Cont., vol. 41, no. 11, pp. 1671–1676, Nov. 1996. (with J. Zhou).

25. "A Realization Theory for Perspective Systems with Applications to Parameter Estimation Problems in Machine Vision," IEEE Trans. on Aut. Cont., vol. 41, no. 12, pp. 1706–1722, Dec. 1996. (with E. P. Loucks).

26. "Dynamical Systems Approach to Target Motion Perception and Ocular Motion Control," Systems and Control in the Twenty-First Century, C. I. Byrnes, B. N. Datta, D. S. Gilliam and C. F. Martin, Editors, Progress in Systems and Control Theory, 22, pp. 185–204, Birkhauser Boston, 1997. (with E. P. Loucks, C. F. Martin and L. Schovanec).

27. "Robotic Motion Planning and Manipulation in an Uncalibrated Environment," IEEE Robotics and Automation Magazine, Special Issue on Applied Visual Servoing, vol. 5, no. 4, pp. 50–57, Dec. 1998. (with T. J. Tarn, N. Xi, Z. Yu and D. Xiao)

28. "Multisensor Based Robotic Manipulation in an Uncalibrated Manufacturing Workcell," Special Issue of the Journal of Franklin Institute on Information/Decision Fusion with Engineering Applications, vol. 336, no. 2, pp. 237–255, March 1999. (with D. Xiao, N. Xi and T. J. Tarn)

29. "Visually Guided Tracking and Manipulation," *Control in Robotics and Automation: Sensor Based Integration*, pp. 115–144, Academic Press, 1999. (with M. Li)

30. "Complimentary Sensor Fusion in Robotic Manipulation," *Control in Robotics and Automation: Sensor Based Integration*, pp. 147–181, Academic Press, 1999. (with Z. Yu, D. Xiao, N. Xi and T. J. Tarn)

31. "Integration of Real-Time Planning and Control in an Unstructured Manufacturing Workcell," *Advanced Robotics*, vol. 13, no. 4, pp. 473–492, 1999. (with D. Xiao, N. Xi and T. J. Tarn)

32. "Sensor Based Hybrid Position/Force Control of a Robot Manipulator in an Uncalibrated Environment," IEEE Trans. on Control Systems Technology, vol. 8, no. 4, pp. 635–645, July 2000 (with D. Xiao, Ning Xi and T. J. Tarn).

33. "Identification of Riccati Dynamics under Perspective and Orthographic Observations," IEEE Trans. on Aut. Control, vol. 45, no. 7, pp. 1267–1278, July 2000. (with H. Inaba and S. Takahashi).

34. "Velocity Tuned Filters for Motion Estimation and Segmentation in Digital Image Sequences," Mathematical and Computer Modelling, vol. 33, pp. 199–221, 2001. (with M. Kong)

35. "Single Camera Based Motion and Shape Estimation using Extended Kalman Filtering," Mathematical and Computer Modelling, vol. 34, pp. 511–525, 2001 (with H. Kano and H. Kanai).

36. "Homogeneous Dynamical Systems Theory," IEEE Trans. on Aut. Cont., vol. 47, no. 3, pp. 462–472, March 2002. (with C. F. Martin).

37. "Motion and Shape Identification with Vision and Range," IEEE Trans. on Aut. Cont., vol. 47, no. 8, pp. 1392–1396, Aug. 2002. (with S. Takahashi).

38. "Canonical Forms and Parameter Identification Problems in Perspective Systems," Fourth special issue on linear systems and control, Linear Algebra and its Applications, vol. 351-352, pp. 701–717, 2002. (with S. Takahashi)

39. "Parameter Estimation under Perspective and Orthographic Projections using Laser Range Finder," Trans. of the Society of Instrument and Control Engineers, vol. 39, no. 2, pp. 1–7, 2003. (with S. Takahashi)

40. "Pose Estimation using Line Based Dynamic Vision and Inertial Sensors," IEEE Trans. on Aut. Cont., vol. 48, no. 2, pp. 186–199, Feb. 2003. (with H. Rehbinder)

41. "Nonlinear observers for perspective time-invariant linear systems," Automatica, vol. 40, no. 3, pp. 481–490, March 2004. (with R. Abdursul, H. Inaba)

42. "Real-time Integration of Sensing, Planning and Control in Robotic Work Cells," Control Engineering Practice, vol. 12, no. 6, June 2004, pp. 653–663. (with D. Xiao, M. Song, N. Xi, T. J. Tarn, Z. Yu)

43. "Modelling and Estimation of the Dynamics of Planar Algebraic Curves via Riccati Equations," Journal of Mathematical Imaging and Vision, vol. 38(2), pp. 139–158, Oct. 2010. (with M. Unel, Ahmet Y. Yazicioglu)

44. "Target Localization and Tracking with Motion Sensors," Theory and Applications of Complex Systems and Robust Control, Tsinghua Univ. Press, J. Huang, K. Liu, Y. Ohta, (Editors), pp. 15–32, 2010. (with D. Cheng and X. Hu)

Computational Neuroscience

45. "Spatiotemporal Dynamics of a Model of Turtle Visual Cortex," Neurocomputing 32-33, pp. 479–486, 2000.

46. "Signal Processing and Control Problems in the Brain: A Neuroscientific Perspective," IEEE Control Systems Magazine, vol. 21, no. 4, pp. 28–41, Aug. 2001. (with Z. Nenadic).

47. "Control of Arm Movement using Population of Neurons," Mathematical and Computer Modelling, vol. 35, pp. 1261–1269, 2002. (with C. H. Anderson and Z. Nenadic)

48. "Propagating Waves in Visual Cortex: A Large Scale Model of Turtle Visual Cortex," Mathematical and Computer Modelling, vol. 35, pp. 743–749, 2002. (with P. Ulinski and Z. Nenadic).

49. "Modelling and Estimation Problems in the Turtle Visual Cortex," IEEE Trans. on Biomedical Engineering, vol. 49, no. 8, pp. 753–762, 2002. (with Z. Nenadic and P. S. Ulinski)

50. "Propagating Waves in Visual Cortex: A Large Scale Model of Turtle Visual Cortex," Journal of Computational Neuroscience, 14, pp. 161–184, 2003. (with Z. Nenadic and P. Ulinski)

51. "Encoding and Decoding of Analog Signals with a Population of Neurons," Journal of Mathematical and Computer Modelling, vol. 39, pp. 181–196, 2004. (with Z. Nenadic)

52. "Encoding and Decoding Target Locations with Waves in the Turtle Visual Cortex," IEEE Trans. on Biomedical Engineering, vol. 52, no. 4, pp. 566–577, April 2005. (with X. Du and P. S. Ulinski)

53. "Two Cortical Circuits Control Propagating Waves in Visual Cortex," Journal of Computational Neuroscience, vol. 19, pp. 263–289, 2005 (with W. Wang, C. Campaigne and P. S. Ulinski)

54. "Encoding of Motion Targets by Waves in the Turtle Visual Cortex," IEEE Trans. on Biomedical Engineering, vol. 53, no. 8, pp. 1688–1695, Aug. 2006. (with X. Du and P. S. Ulinski)

55. "Generation of Receptive Fields of Subpial Cells in Turtle Visual Cortex," Journal of Integrative Neuroscience, vol. 5, no. 4, pp. 561–593, Dec. 2006. (with W. Wang, S. Luo and P. S. Ulinski)

56. "Synaptic Adaptation and Sustained Generation of Waves in a Model of Turtle Visual Cortex," IEEE Trans. on Biomedical Engineering, vol. 56, no. 5, pp. 1277–1286, May 2009. (with Z. Freudenburg and P. S. Ulinski)

57. "Detection of motion direction of targets using a turtle retinal patch model," Mathematical System Theory – Festschrift in Honor of Uwe Helmke on the Occasion of his Sixtieth Birthday, K. Hüper and J. Trumpf Editors, pp. 115–125, 2013, CreateSpace Publishers, ISBN: 978-1470044008. (with Mervyn P. Ekanayake)

Sensing and Motion Control in Biology

58. "Geometry and Control of Human Eye Movements," IEEE Trans. on Aut. Contr., vol. 52, no. 2, pp. 170–180, Feb. 2007. doi.org/10.1109/TAC.2006.887902, (with A. Polpitiya, W. P. Dayawansa and C. F. Martin)

59. "Bio-Inspired Networks of Visual Sensors, Neurons, and Oscillators," Proceedings of the IEEE, Special Issue on Technology of Networked Control Systems, vol. 95, no. 1, pp. 188–214, Jan. 2007. doi.org/10.1109/ JPROC.2006.887320 (with W. Wang and A. Polpitiya)

60. "Modelling and Estimation Problems in the Visuomotor Pathway", *Modelling and Control of Complex Systems*, CRC Press, Taylor and Francis Group, P. A. Ioannou and A. Pitsillides Eds., pp. 367–405, 2007. (with W. Wang and Z. Freudenburg)

61. "Dynamics of Human Head and Eye Rotations under Donders' Constraint," IEEE Trans. on Aut. Contr., vol. 57, no. 10, pp. 2478–2489, Oct., 2012, http://dx.doi.org/10.1109/ TAC.2012.2186183. (with Indika B. Wijayasinghe)

62. "Potential and Optimal Control of Human Head Movement using Tait-Bryan Parametrization," Automatica (Brief Paper), vol. 50(2), pp. 519–529, Feb. 2014, http://dx.doi.org/10.1016/j.automatica.2013. 11.017. (with Indika Wijayasinghe, Justin Ruths, Ulrich Büttner, Stefan Glasauer, Olympia Kremmyda and Jr-Shin Li)

63. "A Geometric Approach to Head/Eye Control," IEEE Access, vol. 2, pp. 316–332, 2014, http://dx. doi.org/10.1109/ ACCESS.2014.2315523. (with Indika B. Wijayasinghe and Sanath D. Kahagalage)

64. "Potential and Optimal Target Fixating Control of the Human Head/Eye Complex," IEEE Trans. on Control Systems Technology (Brief Paper), vol. 23(2), pp. 796–804, March 2015, http://dx.doi.org/10.1109/ TCST. 2014.2335115. (with Indika Wijayasinghe, Eugenio Aulisa, Ulrich Büttner, Stefan Glasauer, Olympia Kremmyda)

65. "Human head movement gaits satisfying Donders' Law: A transverse feedback linearization approach to orientation control," submitted to Automatica (Brief Paper) (with Takafumi Oki)

66. "Control Strategies for Binocular Eye Movements," under preparation for Proceedings of the Royal Society A on Mathematical, Physical and Engineering Sciences. (with Justin Ruths)

67. "Extraction of eye movement pattern by classifying trajectories on SO(3)," (with Pansujee and Su)

Multi-agent Systems

68. "Distributed output regulation for bipartite consensus of high-order multi-agent systems with antagonistic interactions," submitted to IEEE Transactions Neural Networks and Learning Systems (with Yanzhi Wu, Jiangping Hu)

69. "Multi-agent localization based on bearing angle in 3-D" under preparation for xxx (with Magnus Egerstedt)

Iterative Learning Control

70. "Some remarks on the design of iterative learning controllers for MIMO linear time invariant dynamical systems," submitted to System and Control Letters (with Rangana Jayawardhana)

Biomics: Genomic Computations in Biology and Medicine

71. "Genetic Regulatory Networks and Coregulation of Genes: A Dynamic Model Based Approach," Proceedings of the New Directions in Control and Applications, Lecture notes in control and information sciences 321, W. P. Dayawansa, Y. Zhou and A. Lindquist (Eds.) Springer Verlag, pp. 291–304, 2005. (with A. D. Polpitiya and J. P. Cobb)

72. "Plasticity of the Systemic Inflammatory Response to Acute Infection During Critical Illness: Development of the Riboleukogram," PLoS ONE, vol. 3, no. 2, e1564, pp. 2–14, Feb. 2008 (with J. E. McDunn, K. D. Husain, A. D. Polpitiya, A. Burykin, J. Ruan, Q. Li, W. Schierding, N. Lin, D. Dixon, W. Zhang, C. M. Coopersmith, W. M. Dunne, M. Colonna, J. P. Cobb)

73. "Integration of Carbon and Nitrogen Metabolism with Energy Production is Crucial to Light Acclimation in the Cyanobacterium Synechocystis," Plant Physiology, vol. 148(1), pp. 467–478, Sept. 2008 (with A. K. Singh, T. Elvitigala, M. B. Pakrasi, R. Aurora and H. B. Pakrasi)

74. "The Genome of Cyanothece 51142, A Unicellular Diazotrophic Cyanobacterium Important in the Marine Nitrogen Cycle," Proceedings of the National Academy of Science, vol. 105(39), pp. 15094–15099, Sept. 30, 2008 (with E. Welsh, M. Liberton, J. Stockel, T. Loh, T. Elvitigala, C. Wang, A. Wollam, R. S. Flton, S. W. Clifton, J. M. Jacobs, R. Aurora, L. A. Sherman, R. D. Smith, R. K. Wilson, H. B. Pakrasi)

75. "Arabidopsis Transcriptome Reveals Control Circuits Regulating Redox Homeostasis and the Role of an AP2 Transcription Factor," Plant Physiology, vol. 148, pp. 2050–2058, 2008 (with A. Khandelwal, T. Elvitigala, and R. Quatrano)

76. "Using Systems Biology to Simplify Complex Disease: Immune Cartography," Critical Care Medicine, vol 37(13)(Suppl.), pp. S2–S6, 2009 (with A. D. Polpitiya, J. E. McDunn, A. Burykin, J. P. Cobb)

77. "Dynamic Network Modelling of Diurnal Genes in Cyanobacteria," Emergent Problems in Nonlinear Systems and Control, pp. 21–41, Springer Verlag, Heidelberg, Germany, 2009. (T. Elvitigala, H. B. Pakrasi)

78. "Effect of Continuous Light on Diurnal Rhythms in Cyanothece ATCC 51142," BMC Genomics 10:226, 2009. (http://www.biomedcentral.com/1471-2164/10/226) (with T. Elvitigala, J. Stockel, H. B. Pakrasi)

79. "A Systems Level Analysis of the Effects of Light Quality on the Metabolism of a Cyanobacterium," Plant Physiology, 151, pp. 1596–1608, 2009. (with A. Singh, M. B. Pakrasi, T. Elvitigala, R. Aurora, H. B. Pakrasi)

80. "Integrative analysis of large scale expression profiles reveals core transcriptional response and coordination between multiple cellular processes in a Cyanobacterium," BMC Systems Biology, vol. 4:105, 2010. (with A. K. Singh, T. Elvitigala, J. C. Cameron, M. B. Pakrasi and H. B. Pakrasi)

81. "Global proteomics reveal an atypical strategy for carbon/nitrogen assimilation by a cyanobacterium under diverse environmental perturbations," Molecular and Cellular Proteomics, Sep. 21, 2010, M110.000109. (with K. M. Wegener, A. K. Singh, J. M. Jacobs, T. R. Elvitigala, E. A. Welsh, N. Keren, M. A. Gritsenko, D. G. Camp II, R. D. Smith, H. B. Pakrasi)

82. "High-Throughput Biological Data Analysis–A Step Toward Understanding Living Cells," IEEE Control Systems Magazine, pp. 81–100, Dec. 2010. (with T. R. Elvitigala, A. D. Polpitiya, W. Wang, J. Stockel, A. Khandelwal, R. S. Quatrano and H. B. Pakrasi)

83. "Identification and Modelling of Genes with Diurnal Oscillations from Microarray Time Series Data," IEEE Trans. on Bioinformatics and Computational Biology, vol. 8(1), pp. 108–121, Jan/Feb 2011. (with W. Wang and H. B. Pakrasi)

Miscellaneous

84. "Multi-Resolution Filtering with Application to Image Segmentation," Journal of Mathematical and Computer Modelling, vol. 24, no. 5/6, pp. 177–195, Sept. 1996. (with J. Zhou and X. Fang).

85. "Geometric Active Deformable Models in Shape Modelling," IEEE Trans. on Image Processing, vol. 9, no. 2, pp. 302–308, Feb. 2000. (with H. Wang).

86. "Boundary Location Using Control Theoretic Splines," Trans. of the Society of Instrument and Control Engineers, vol. 38, no. 3, pp. 293–298, March 2002. (with S. Takahashi and C. F. Martin)

87. "Quantized Principal Component Analysis with Applications to Low Bandwidth Image Compression and Communication," International Journal of Innovative Computing, Information and Control, vol. 1, no. 3, pp. 479–492, Sept. 2005. (with D. Wooden and M. Egerstedt)

88. "Control of Large Scale Boolean Networks via Network Aggregation," IEEE Trans. Neural Networks and Learning Systems, 30^{th} July, 2015, ISSN: 2162-237X, DOI: 10.1109/TNNLS. 2015.2442593. (with Daizhan Cheng and Yin Zhao).

Refereed Conference Papers, Posters and Presentations

1. "Simultaneous Stabilization, Sensitivity Minimization, Tracking and Disturbance Rejection by Interpolation Methods," Proceedings 22^{nd} Annual Allerton Conference on Communication, Control and Computing, October 3-5, 1984, pp. 625–634.

2. "Some Recent Results in Simultaneous System Design," Contemporary Mathematics, (American Mathematical Society, Providence, Rhode Island), vol. 47, 1985, pp. 163–175.

3. "On the Problem of Simultaneously Stabilizing a One Parameter Family of Single Input Single Output Linear Dynamical Systems," Proceedings 23rd Annual Allerton Conference on Communication, Control and Computing, October 2-4, 1985, pp. 795–796.

4. "Controlled Invariant and Feedback Controlled Invariant Subspaces in the Design of a Generalized Dynamical System," Proceedings 24th IEEE Conference on Decision and Control, December 11-13, 1985, pp. 872–873.

5. "A Geometric Approach to Simultaneous System Design: Parameter Insensitive Disturbance Decoupling by State and Output Feedback," Modelling, Identification and Robust Control, C. I. Byrnes and A. Lindquist (Editors), Elsevier Science Publishers B. V. (North Holland), 1986, pp. 471–484.

6. "A Stability Theory of Linear Time Varying Systems," Proceedings 25th Annual Allerton Conference on Communication, Control and Computing, 1987, pp. 1172–1180. (with P. R. Bouthellier).

7. "A Randomized Algorithm for Simultaneous Identification of Linear Systems," Proceedings 27th IEEE Conference on Decision and Control, December 7-10, 1988, pp. 1538–1539. (with H. Schattler).

8. "On the Problem of Degeneration of Linear System by High Gain," Proceedings 27th IEEE Conference on Decision and Control, December 7-10, 1988, pp. 431–432. (with P. Mensah).

9. "Simultaneous Stabilization of Linear Time Varying Systems by Linear Time Varying Compensation," Proceedings of the Bozeman Conference, Published by Birkhauser, Boston, 1989, Bozeman, Montana, 1988, pp. 1–9. (with P. Bouthellier).

10. "Estimation of Motion Parameters of a Rigid Body from Observations of its Projections," Proceedings of the American Control Conference, Pittsburgh, Pennsylvania, June 21-23, 1989. (with S. Ganguly, T. J. Tarn and A. K. Bejczy).

11. "Identification of Motion Parameters of a Rigid Body from its Orthogonal and Perspective Projection," Proceedings of the 28th IEEE Conference on Decision and Control, 1989. (with S. Ganguly, T. J. Tarn and A. K. Bejczy).

12. "Motion Space Analysis of a Object Handled by Two Robot Arms," Proceedings of the 28^{th} IEEE Conference on Decision and Control, 1989. (with Z. Li, T. J. Tarn and A. K. Bejczy).

13. "Stabilization and Exact Tracking of Fast Moving Time Varying Systems," Proceedings of the 27th Annual Allerton Conference on Communication Control and Computing, 1989. (with P. Bouthellier).

14. "Regularity of the Zero-dynamics Algorithm and Approximate Input Output Decoupling," Proceedings of the 28th Annual Allerton Conference on Communication Control and Computing, 1990. (with M. Jankovic).

15. "Observability of Perspective Systems: A New Approach to Computer Vision," Computation and Control II, Proceedings of the Second Bozeman Conference, Bozeman, Montana, August 1-7, 1990, K.L. Bowers and J. Lund Editors, Birkhauser, Boston, 1991, pp. 125–134 (with Y. T. Wu).

16. "Observability and Identifiability Problems in Perspective Systems: A New Approach to Computer Vision," SPIE vol. 1607 Intelligent Robots and Computer Vision X: Algorithms and Techniques (1991), pp. 589–600. (with Y. T. Wu).

17. "Some New Results in Perspective System Theory and its Application to Computer Vision," Proceedings of the ninth symposium on energy engineering sciences - Fluid and Dynamical Systems, May 13-15, 1991, at the Argonne National Laboratory, Argonne, Illinois, Report no. CONF-9105116, pp. 85–92.

18. "New Geometric Methods in Computing the Motion Parameters of a Rigid Body Using Straight Line Correspondences," Proc. 1992 American Control Conference, Chicago, pp. 1500–1504, June 1992. (with M. Lei).

19. "An adaptive controller for systems with unmeasurable disturbance," Proc. 1992 American Control Conference, Chicago, June 1992. (with W. Lin).

20. "Some problems in perspective system theory and its application to machine vision," IROS'92, 1992 IEEE/RSJ International Conference on Intelligent Robots and Systems, Raleigh, North Carolina, USA, July 7-10, 1992 (with M. Jankovic and Y. T. Wu).

21. "Dynamical Systems approach to Computer Vision," SIAM Conference on Applications of Dynamical Systems, Salt Lake City, Utah, October 15-19, 1992.

22. "An optical flow based approach for motion and shape parameter estimation in computer vision," Proceedings of the 31st IEEE Conference on Decision and Control, 1992. (with E. P. Loucks and J. Lund).

23. "Visually guided robotic motion tracking," Proceedings of the Thirtieth Annual Allerton Conference on Communication, Control and Computing, September 30-Oct 2, 1992. (with M. Lei).

24. "On the problem of parameter identification in perspective systems and its application to motion estimation problems in Computer Vision," Computation and Control III, Proceedings of the Third Bozeman Conference, Bozeman, Montana. K. L. Bowers and J. Lund Editors, Birkhauser, Boston, 1993. (with E. P. Loucks).

25. "Estimation of Angular Velocity of a Moving Object Using Line Correspondences," Proceedings of the American Control Conference, San Francisco, June 2-4, 1993. (with M. Lei).

26. "Image Based Estimation Problems in System Theory: Motion and Shape Estimation of a Planar Textured Surface Undergoing a Rigid Flow," Proceedings of the American Control Conference, San Francisco, June 2-4, pp. 1322–1326, 1993. (Invited)

27. "On the Problem of Coefficient Assignment of Discrete Time Multi-Input Multi-Output Linear Time Varying Systems," Proceedings of the American Control Conference, San Francisco, June 2-4, 1993. (Invited)

28. "A Recursive Approach for Coefficient Assignment of Discrete Time MIMO Linear Time Varying Systems," Proceedings of the 12th IFAC World Congress, Sydney, Australia, July 19- 23, 1993. (Invited)

29. "Visionics: A New Vision Guided Estimation of a Dynamical System," Proceedings of the 12th IFAC World Congress, Sydney, Australia, July 19-23, 1993. (Invited)

30. "Some new results in discrete time motion and shape estimation in machine vision," Proceedings of the Tenth International Symposium on the Mathematical Theory of Networks and Systems, Regensburg, August 2-6, 1993, Mathematical Research, vol. 79, pp. 775–780. (Invited) (with E. P. Loucks).

31. "On the Realization of Perspective Systems and its Application to Motion and Shape Estimation Problems in Machine Vision," Proceedings of the 32nd IEEE Conference on Decision and Control, San Antonio, Texas, December 15-17, 1993, pp. 1233–1236. (with E. P. Loucks).

32. "Visually Guided Robotic Tracking and Grasping of a Moving Object," Proceedings of the 32nd IEEE Conference on Decision and Control, San Antonio, Texas, December 15-17, 1993, pp. 1604–1609. (with M. Lei).

33. "Visually Guided Control Systems: Present Technology and Future Prospects," Proceedings of the twelvth symposium on energy engineering sciences, Argonne National Laboratory, Argonne, Illinois, April 27-29, 1994, Conf-9404137, pp. 154–160.

34. "Smooth image segmentation via multiresolution analysis," Proceedings SPIE - The International Society for Optical Engineering, Wavelet Applications in Signal and Image Processing II, 27-29 July, 1994, San Diego, California, vol. 2303, pp. 462–472. (with X. Fang and J. Zhou).

35. "Image Segmentation Based on Multiresolution Filtering," Proceedings ICIP - IEEE International Conference on Image Processing, 13-16 November, 1994, Austin, Texas, vol. III, pp. 483–487. (with X. Fang and J. Zhou).

36. "A Nonrecursive Coefficient Assignment and Stabilization Scheme for Linear Time Varying Systems," Proceedings of the Thirty-Second Annual Allerton Conference on Communication, Control and Computing, September 28-September 30, 1994, pp. 21–30. (with P. R. Bouthellier).

37. "On-Line Collision Avoidance for Robot in a Non-Stationary Environment," Proceedings of the Thirty-Second Annual Allerton Conference on Communication, Control and Computing, September 28-September 30, 1994, pp. 651–660. (with Z. Yu, T. J. Tarn and C. Guo).

38. "On the Problem of Observing Motion and Shape," Proceedings of the ICARCV'94, Third International Conference on Automation, Robotics and Computer Vision, Shangri-La, Singapore, November 9 - 11, 1994, pp. 653–657. (with M. Jankovic and E. P. Loucks).

39. "Temporal and Spatial Sensor Fusion in a Robotic Manufacturing Work cell," Proceedings of the 1994 Hongkong International Workshop on New Directions of Control and Manufacturing, Hotel Victoria, Hongkong Nov. 7-9, 1994, pp. 317-324. (with Z. Yu, N. Xi and T. J. Tarn).

40. "An Introduction to Perspective Observability and Recursive Identification Problems in Machine Vision," Proceedings of the 33rd IEEE Conference on Decision and Control, Lake Buena Vista, Florida, December 14-16, 1994, pp. 3229–3234. (with M. Jankovic and E. P. Loucks).

41. "Temporal and Spatial Sensor Fusion in a Robotic Manufacturing Work cell," IEEE International Conference on Robotics and Automation, Nagoya Congress Center, Nagoya, Japan, May 21-27, 1995, pp. 160–165. (with Z. Yu, N. Xi and T. J. Tarn).

42. "Multi-Sensor Based Planning and Control for Robotic Manufacturing Systems," Proceedings of the 1995 IEEE/RSJ International Conference on Intelligent Robots and Systems, August 5-9, 1995, Pittsburgh, Pennsylvania, USA, vol. 3, pp. 222–227.

43. "A Semantic Control Approach to Intelligent Transportation Systems," Proceedings of the Intelligent Vehicles '95 Symposium, Sponsored by IEEE Industrial Electronics Society, Sept. 25-26, 1995, Detroit, USA, pp. 430–435. (with M. Amin, E. Y. Rodin, A. Liu, K. Rink, A. Garcia and J. Wootton).

44. "Calibration Free Visually Controlled Manipulation of Parts in a Robotic Manufacturing Work cell", Proceedings of the 1996 IEEE International Conference on Robotics and Automation, April 22-28, 1996, Minneapolis, Minnesota, USA., pp. 3197–3202. (with N. Xi, T. J. Tarn, Z. Yu and D. Xiao).

45. "Multistage Nonlinear Estimation with applications to image based parameter estimation," Proceedings of the 13^{th} IFAC World Congress, June 30-July 5, 1996, San Francisco, California, USA, vol. F: Nonlinear Systems II, pp. 447–452. (with M. Jankovic and E. P. Loucks).

46. "A Calibration Free Multi Sensor Fusion Scheme for Motion Estimation, Tracking and Grasping in a Manufacturing Work cell " Proc. of the workshop on Foundations of Information/Decision Fusion: Applications to Engineering Problems, August 7-9, 1996, Washington D.C. (with D. Xiao, N. Xi and T. J. Tarn).

47. "Calibration Free Vision Based Control of a Robotic Manipulator", Proceedings of the 34^{th} Annual Allerton Conference on Communication, Control and Computing, 1996.

48. "Multi sensor Based Intelligent Planning and Control for Robotic Manipulators on a Mobile Platform" Proceedings of Robot and Human Communication RO-MAN'96, November 11-14, 1996. (with D. Xiao, N. Xi and T. J. Tarn)

49. "Multi-Sensor Fusion Scheme for Calibration-Free Stereo Vision in a Manufacturing Work cell" Proceedings of the 1996 IEEE/SICE/RSJ International Conference on Multi-sensor Fusion and Integration for Intelligent Systems, December 8 - 11, 1996, Washington D.C., U.S.A., pp. 416–423. (with M. Song, N. Xi and T. J. Tarn)

50. "A Single Camera, Calibration Free Estimation and Tracking Scheme with Multi-Sensor Fusion in a Manufacturing Work cell" Proceedings of the 1996 IEEE/SICE/RSJ International Conference on Multi sensor Fusion and Integration for Intelligent Systems, December 8 - 11, 1996, Washington D.C., U.S.A., pp. 679–686. (with D. Xiao, N. Xi and T. J. Tarn).

51. "Planning and Control of Self Calibrated Manipulation for a Robot on a Mobile Platform" Proceedings of the IEEE International Conference on Robotics and Automation, April 20-25, 1997, Albuquerque, New Mexico, USA. (with D. Xiao, N. Xi and T. J. Tarn).

52. "Visionics: The Design of Intelligent Machines " Fifteenth Symposium on Energy Engineering Sciences, Argonne National Laboratory, May 14-16, 1997. (with D. Xiao, N. Xi and T. J. Tarn).

53. "Planning and Control in Reconfigurable Manufacturing Workcell" Proceedings of the 1997 IEEE/ASME International Conference on Advanced Intelligent Mechatronics, June 16-20, 1997, Waseda University, Japan, (with D. Xiao, N. Xi and T. J. Tarn).

54. "Sensor Guided Manipulation in a Manufacturing Workcell" Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems, September 8-12, 1997, Grenoble, France, (with D. Xiao, N. Xi and T. J. Tarn).

55. "3D Part Manipulation Aided by Uncalibrated Mono-Camera" Proceedings of the Fifth Symposium on Robot Control, September 3-5, 1997, Nantes, France, (with D. Xiao, N. Xi and T. J. Tarn).

56. "Cross-Ratio Dynamics and its Application to Calibration Free Motion Estimation" Proceedings of the Conference on Decision and Control, December 1997.

57. "Simultaneous Pole Placement of Linear M.I.M.O. Dynamical Systems," Proceedings of the Conference on Decision and Control, December 1997, (with A. Wang).

58. "Controllability, Observability and Realizability of Perspective Dynamic Systems," Proceedings of the Conference on Decision and Control, December 1997, (with E. P. Loucks, C. F. Martin).

59. "Accelerated Spatio-Temporal Wavelet Transforms: An Iterative Trajectory Estimation," Proceedings of the International Conference on Acoustics Speech and Signal Processing, 1998, Seattle, U.S., May 11-15, 1998, vol. 5, pp. 2781–2784, paper # 1417 (with M. Kong and J. P. Leduc).

60. "Wavelet Based Analysis of Rotational Motion in Digital Image Sequences," International Conference on Acoustics Speech and Signal Processing, 1998, Seattle, U.S., May 11-15, 1998, vol. 5, pp. 2777–2780, paper # 1406 (with M. Kong and J. P. Leduc).

61. "Parameter identifiability of Riccati dynamics under perspective and orthographic projections," Proceedings of the Mathematical Theory of Networks and Systems, July 1998, pp. 1011–1014. (with H. Inaba and S. Takahashi).

62. "Identification of motion and shape parameters using extended Kalman Filters," Proceedings of the Mathematical Theory of Networks and Systems, July 1998, pp. 1039–1042. (with H. Kano and H. Kanai).

63. "Image Segmentation with velocity tuned filters," Proceedings of the Mathematical Theory of Networks and Systems, July 1998, pp. 1043–1046. (with M. Kong).

64. "Boundary finding with new balloon models," 20^{th} Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS'98), HONG KONG, Oct. 29-Nov. 1, 1998, (with H. Wang)

65. "Geometric deformable model and segmentation", Proceedings of the 1998 IEEE International Conference on Image Processing, Oct. 4-7, 1998, (with H. Wang)

66. "Spatio-Temporal Continuous Wavelet Transforms for Motion-Based Segmentation in real Image Sequences", Proceedings of the 1998 IEEE International Conference on Image Processing, Oct. 4-7, 1998, (with M. Kong, J. P. Leduc, V. Wickerhauser)

67. "Integration of real-time planning and control in an unstructured workspace" Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems, Oct. 13-17, 1998, Victoria Conference Center, Victoria B.C., Canada, (with D. Xiao, N. Xi and T. J. Tarn).

68. "Estimation of image motion with velocity tuned filters", Paper A8-1, Proceedings of the 30^{th} ISCIE International Symposium on Stochastic Systems Theory and its Applications, November 4-6, 1998, Kyodai Kaikan Hall, Kyoto University, Kyoto, Japan, (with M. Kong and J. P. Leduc).

69. "A Note on Parameter Identifiability of Riccati Dynamics under Perspective Projection", Paper A8-2, Proceedings of the 30^{th} ISCIE International Symposium on Stochastic Systems Theory and its Applications, November 4-6, 1998, Kyodai Kaikan Hall, Kyoto University, Kyoto, Japan, (with S. Takahashi and H. Inaba)

70. "Estimation of Motion and Shape Parameters of a Moving Rigid Body by Extended Kalman Filter", Paper A8-3, Presented at the 30^{th} ISCIE International Symposium on Stochastic Systems Theory and its Applications, November 4-6, 1998, Kyodai Kaikan Hall, Kyoto University, Kyoto, Japan, (with H. Kano and H. Kanai).

71. "Detection of expansional, contractional and sheared motion using spatio-temporal continuous wavelet" Proceedings of the 14^{th} IFAC World Congress, July 5-9, 1999, Beijing, China, Paper no. 3a-16-6, pp. 103-107 (in the session on *Applications of Identification II*, Session Number 3a-16, 10:00 - 12:00, July 6) (with M. Kong and J. P. Leduc).

72. "Homogeneous dynamical systems theory" Proceedings of the 14^{th} IFAC World Congress, July 5-9, 1999, Beijing, China, Paper no. 2a-12-2, pp. 399-404 (in the special invited session on *Sensor Guided Control and Learning with Applications*, Session Number 2a-12, 13:00 - 15:00, July 8) (with C. Martin and E. P. Loucks).

73. "Real-time planning and control for robot manipulator in unknown workspace" Proceedings of the 14^{th} IFAC World Congress, July 5-9, 1999, Beijing, China, Paper no. 2a-12-6, pp. 423-428 (in the special invited session on *Sensor Guided Control and Learning with Applications*, Session Number 2a-12, 13:00 - 15:00, July 8) (with D. Xiao, N. Xi and T. J. Tarn).

74. "Rotational and translational motion estimation and selective reconstruction in digital image sequence," Proceedings of the International Conference on Acoustics, Speech and Signal Processing, 1999. (with M. Kong).

75. "Velocity Tuned Filters for Motion Estimation and Segmentation in Digital Image Sequences", Proceedings of the Sixth Conference on Computation and Control, Montana State University, Bozeman, Montana, Special Issue of Mathematical and Computer Modelling, 1999. (with M. Kong)

76. "Dynamic Control Problems with On/Off Cells", Special Invited Session on *Dynamic Problems in Vision and Motor Control*, Proceedings of the 38^{th} IEEE Conference on Decision and Control, Crowne Plaza Hotel, 100 N. 1st Street, Phoenix, Arizona, USA, Dec. 7-10, 1999, pp. 399–404. (with Z. Nenadic)

77. "A Dynamical Systems Approach to Shape Estimation Via Geometric Active Deformable Models", Proceedings of the 38^{th} IEEE Conference on Decision and Control, Crowne Plaza Hotel, 100 N. 1st Street, Phoenix, Arizona, USA, Dec. 7-10, 1999, pp. 4149–4154. (with H. Wang)

78. "Hybrid position and force control of a robot manipulator", Proceedings of the 1999 IEEE Hongkong Symposium on Robotics and Control, July 2-3, pp. 367–372, 1999. (with D. Xiao, N. Xi and T. J. Tarn.)

79. "A multisensor fusion approach to shape estimation using a mobile platform with uncalibrated position", Proceedings of the 1999 IEEE/SICE/RSJ International Conference on Multisensor Fusion and Integration for Intelligent Systems MFI'99, August 15 - 18, 1999, The Grand Hotel, Taipei, Taiwan, ROC, pp. 205–210. (with L. Zhang)

80. "Surface evolution based noise removal/image smoothing", Proceedings of the Fourth Asian Conference on Computer Vision, ACCV2000, The Grand Hotel, Taipei, Taiwan, January 8 - 11, 2000, pp. 547–552. (with H. Wang)

81. "Line segment based map building and localization using 2D laser rangefinder", IEEE International Conference on Robotics and Automation, San Francisco Hilton and Towers, San Francisco, USA, April 22 - 28, 2000, pp. 2538–2543. (with L. Zhang)

82. "Orbits and canonical forms for perspective systems", 2000 American Control Conference, The Hyatt Regency Hotel, Chicago, Illinois, USA, June 28 - 30, 2000. (with S. Takahashi)

83. "Parameter identification using Kronecker canonical forms with applications to motion estimation ", 14^{th} International Symposium of Mathematical Theory of Networks and Systems, Perpignan, France, June 19-23, 2000. (with S. Takahashi)

84. "Representation and reconstruction of spatio-temporal signals using on/off cells", 2000 American Control Conference, The Hyatt Regency Hotel, Chicago, Illinois, USA, June 28 - 30, 2000. (with Z. Nenadic and P. Li)

85. "Motion Prediction using Spatiotemporal Dynamics in a Model of the Turtle Visual Cortex", Fourth International Conference on Cognitive and Neural Systems, May 25-27, 2000, Boston University, 677 Beacon Street, Boston, MA 02215 (with Z. Nenadic, P. Ulinski)

86. "A Nonlinear Control of Arm Movement using a Population of Neurons", Fourth International Conference on Cognitive and Neural Systems, May 25-27, 2000, Boston University, 677 Beacon Street, Boston, MA 02215 (with Z. Nenadic, C. Anderson)

87. "Dynamics and control with a population of neurons," Proceedings of the third Asian Control Conference, July 4-7, 2000, Shanghai, PRC, pp. 2667–2672.

88. "Propagating waves in visual cortex: A large scale model of turtle visual cortex," Proceedings of the 9^{th} Annual Computational Neuroscience Meeting, CNS 2000, July 16-20, 2000, Brugge, Belgium.

89. "A Nonlinear Dynamic Control with Activity Based Encoding with a Population of Neurons," Proceedings of the 9^{th} Annual Computational Neuroscience Meeting, CNS 2000, July 16-20, 2000, Brugge, Belgium.

90. "Geometric feature based $2\frac{1}{2}$D map building and planning with laser, sonar and tactile sensors", IEEE/RSJ International Conference on Intelligent Robots and Systems, October 30 - November 5, 2000, Kagawa University, Takamatsu, Japan.

91. "Canonical forms and orbit identification problems in machine vision", The 39^{th} IEEE Conference on Decision and Control, Sydney Convention and Exhibition Center, Australia, Dec. 12-15, 2000, pp. 5175-5181. (with S. Takahashi)

92. "Tracking of a two-link arm with a population of neurons", The 39^{th} IEEE Conference on Decision and Control, Sydney Convention and Exhibition Center, Australia, Dec. 12-15, 2000, pp. 1776-1781. (with Z. Nenadic)

93. "Three Dimensional Structure Estimation and Planning with Vision and Range", The 39^{th} IEEE Conference on Decision and Control, Sydney Convention and Exhibition Center, Australia, Dec. 12-15, 2000, Invited Session at the Recent Advances in Vision Based Control, pp. 2515-2520. (with L. Zhang)

94. "Observability of perspective dynamical systems", The 39^{th} IEEE Conference on Decision and Control, Sydney Convention and Exhibition Center, Australia, Dec. 12-15, 2000, pp. 5157-5162. (with H. Inaba, A. Yoshida and R. Abdursul)

95. "Identification of relative position and orientation of two cameras from motion and shape parameters of moving rigid body", The 39^{th} IEEE Conference on Decision and Control, Sydney Convention and Exhibition Center, Australia, Dec. 12-15, 2000, pp. 5169-5174. (with H. Kano)

96. "A note on observability of perspective dynamical system", SICE Symposium on Dynamical System Theory, Nov. 6-8,2000, Nagaoka City, Japan. (with H. Inaba and R. Abdursul)

97. "Motion and shape identification with vision and range", The 2001 American Control Conference, The Crystal Gateway Marriott, Arlington, Virginia, USA., June 25-27, 2001, pp. 4626-4631, Session entitled: Teleoperation and Vision (with S. Takahashi)

98. "Computation with biological neurons", The 2001 American Control Conference, The Crystal Gateway Marriott, Arlington, Virginia, USA., June 25-27, 2001, pp. 257-262, Session entitled: Neural and Bio-Mechanical Modelling in Life Science (with Z. Nenadic)

99. "Optimal filtering in biological neural network", The 2001 American Control Conference, The Crystal Gateway Marriott, Arlington, Virginia, USA., June 25-27, 2001, pp. 3539-3542, Session entitled: Neural Network Based Adaptive Control (with A. Polpitiya and Z. Nenadic)

100. "Dynamic models of planar algebraic curves", 40^{th} IEEE Conference on Decision and Control, Orlando, FL, Dec 3-7, 2001, pp. 1304-1309, Session entitled: Nonlinear Control and Applications (with M. Unel)

101. "Rigid body state estimation using dynamic vision and inertial sensors", 40^{th} IEEE Conference on Decision and Control, Orlando, FL, Dec 3-7, 2001,pp. 2398-2403. Session entitled: Robotics (with H. Rehbinder)

102. "Population coding with biological neurons and its applications to control", Invited session on *A new perspective in biological signal processing and motor control II* at the 40^{th} IEEE Conference on Decision and Control, Orlando, FL, Dec 3-7, 2001, pp. 405-410. (with Z. Nenadic)

103. "Multi-rate fusion of visual and inertial data", IEEE Conference on Multisensor Fusion and Integration for Intelligent Systems MFI2001, August 20-22, 2001, Baden-Baden, Germany.(with H. Rehbinder)

104. "Parameter estimation with Kronecker Canonical forms with applications from machine vision," Presentation at the invited session on *Some new approaches to control systems,* 20^{th} Chinese Control Conference, Aug 10-12, 2001, Dalian, China.

105. "Dynamic modelling and control with a population of cells: A neuro-biological perspective," Proceedings of the 20^{th} Chinese Control Conference, Dalian, China, Aug 10-12, 2001, vol. 2, pp. 857-862. (with Z. Nenadic)

106. "Luenberger-type observers for perspective linear systems," Proceedings of the European Control Conference, CD-ROM, Porto, Portugal, September 2001. (with R. Abdursul, H. Inaba)

107. "Dynamical problems in animal vision: Modelling the turtle visual cortex," Proceedings of the joint symposium for Advanced Science and Technology (JSAST),Tokyo, October 2001, pp. 141-146.

108. "Modelling and control of eye-movement with musculotendon dynamics," Invited session on Neuromotor Control, The 2002 American Control Conference, May 8-10, 2002. (with A. Polpitiya)

109. "Position and velocity estimation in the visual cortex," The 15^{th} IFAC World Congress on Automatic Control, Universitat Politecnica de Catalunya, Barcelona, Spain, July 21-26, 2002, pp. 2361-2366. (with Z. Nenadic)

110. "Modelling and control of 3D eye movement with musculotendon dynamics," The 15^{th} IFAC World Congress on Automatic Control, Universitat Politecnica de Catalunya, Barcelona, Spain, July 21-26, 2002, pp. 2632–2637. (with A. Polpitiya, C. Martin, L. Schovanec)

111. "Decoding the position of a visual stimulus from the cortical waves of turtles," Proc. of the 2003 American Control Conference, June 4-6, 2003, pp. 477–482, The Adams Mark Hotel, Denver, Colorado, USA. (with X. Du)

112. "A Volterra approach to dynamic modelling of the visual cortex," Proc. of the 2003 American Control Conference, June 4-6, 2003, pp. 3579–3584, The Adams Mark Hotel, Denver, Colorado, USA. (with J. Jenner)

113. "Dynamical Systems Analysis of Propagating Waves in Turtle Visual Cortex," Siam Conference on Applications of Dynamical Systems, May 27-31, 2003. (with P. Ulinski, D. Senseman and K. Robbins.)

114. "Information theoretic analysis of turtle cortical waves," 42^{nd} IEEE Conference on Decision and Control, Dec. 9-12, 2003, pp. 6423–6428, Maui, Hawaii, USA. (with X. Du)

115. "Modelling the Dynamics of Oculomotor System in Three Dimensions," 42^{nd} IEEE Conference on Decision and Control, Dec. 9-12, pp. 6418–6422, 2003, Maui, Hawaii, USA. (with A. Polpitiya)

116. "Nonlinear Observers for Perspective Time-Invariant Linear Systems," 42^{nd} IEEE Conference on Decision and Control, Dec. 9-12, pp. 6319–6324, 2003, Maui, Hawaii, USA. (with R. Abdursul, H. Inaba)

117. "Generation and Control of propagating waves in the visual cortex," 42^{nd} IEEE Conference on Decision and Control, Dec. 9–12, pp. 6429–6434, 2003, Maui, Hawaii, USA. (with P. Ulinski, W. Wang)

118. "Mechanics of the eye movement: Geometry of the Listing space," Proc. of the 2004 American Control Conference, June 30-July 2, pp. 323–328, 2004, Boston Sheraton Hotel, Boston, MA, USA. (with A. D. Polpitiya, C. F. Martin and W. P. Dayawansa)

119. "Dynamic modelling of turtle cortex stimulated by natural input," Proc. of the 2004 American Control Conference, June 30-July 2, pp. 299–304, 2004, Boston Sheraton Hotel, Boston, MA, USA. (with J. Jenner)

120. "Cortical encoding of retinal output from natural scenes with sparse representation," Proc. of the 2004 American Control Conference, June 30-July 2, pp. 305–310, 2004, Boston Sheraton Hotel, Boston, MA, USA. (with W. Wang)

121. "Optimal Control of Ocular Dynamics," The 1^{st} *Center of Excellence* workshop on human adaptive mechatronics, Tokyo Denki University, Hatoyama-Machi, Hiki-Gun, Saitama 350-03, Japan, March 6, 2004. (with A. D. Polpitiya and W. P. Dayawansa)

122. "Turtle cortical activity captured by dynamic models" 43^{rd} IEEE Conference on Decision and Control, Dec. 14-17, pp. 136–141, 2004, Atlantis, Paradise Island, Bahamas, USA, Special session on 'Network based control in biology and engineering' organized by B. K. Ghosh and C. Martin (with J. Joseph)

123. "Natural target localization from activity waves in the turtle visual cortex," IEEE Conference on Decision and Control, Dec. 14-17, pp. 142–146, 2004, Atlantis, Paradise Island, Bahamas, USA, Special session on 'Network based control in biology and engineering' organized by B. K. Ghosh and C. Martin (with W. Wang)

124. "Nonlinear observers appearing in dynamical machine vision," Session on Nonlinear Observers at the 43^{rd} IEEE Conference on Decision and Control, Dec. 14-17, pp. 3903–3908, 2004, Atlantis, Paradise Island, Bahamas, USA. (with H. Inaba and R. Abdursul)

125. "Localization of point targets from cortical waves using ARMA models," Session on Biomodelling and Control I, Proc. of the 2005 American Control Conference, June 8-10, pp. 400–404, 2005, Portland, Oregon, USA. (with W. Wang.)

126. "Motion estimation of plane polynomial curves," Session on Tracking, Proc. of the 2005 American Control Conference, June 8-10, pp. 1289–1294, 2005, Portland, Oregon, USA. (with M. Unel.)

127. "Bio-Inspired sensor design with an array of coupled lasers", Proc. 44^{th} IEEE Conference on Decision and Control and the European Control Conference, pp. 239–244, Dec. 2005.

128. "Localizing point targets in space using Kuramoto's models: Stability analysis," Proc. of the 3^{rd} COE workshop on Human Adaptive Mechatronics (HAM), Tokyo Denki University, Saitama, Japan, pp. 39–44, March, 2006.

129. "Modelling and estimation problems in the visual cortex," Proc. of the 4^{th} COE workshop on Human Adaptive Mechatronics (HAM), March 2-3, 2007, Tokyo Denki University, Japan, pp. 35–40. (with W. Wang and Z. V. Freudenburg)

130. "Redox homeostasis in plants: The Arabidopsis transcriptome in response to photosynthetic stress using high light and DCMU," Integrative Plant Physiology, Plant Biology and Botany 2007, Joint Congress, July 7–11, 2007, Chicago, Illinois, USA, (with Abha Khandelwal (abha@wustl.edu), Thanura Elvitigala (tre1@cec.wustl.edu) and Ralph S. Quatrano (rsq@wustl.edu))

131. "Kuramoto models, coupled oscillations and laser networks," Session in Nonlinear Control, SICE Annual Conference 2007 at the Kagawa Univ. in Takamatsu, Japan, pp. 130–135, Sep. 17–20, 2007. (with W. Wang)

132. "Systems approach divulges redox regulation of Arabidopsis transcriptome," The Eighth International Conference on Systems Biology ICSB 2007, Long Beach, CA, USA, Oct. 1–6, 2007. (Poster Presentation with Abha Khandelwal, Thanura Elvitigala and Ralph Quatrano)

133. "Identification and modelling of co-rhythmic genes from micro array time series data," The Eighth International Conference on Systems Biology ICSB 2007, Long Beach, CA, USA, Oct. 1–6, 2007. (Poster Presentation with Wenxue Wang, Thanura Elvitigala, Jana Stockel, Himadri B. Pakrasi)

134. "Computational Analysis of the redox stress response in organisms" The Eighth International Conference on Systems Biology ICSB 2007, Long Beach, CA, USA, Oct. 1–6, 2007. (Poster Presentation with Thanura Elvitigala, Abhay Singh, Abha Khandelwal, Maitrayee Bhattacharya-Pakrasi, Rajeev Aurora, Himadri Pakrasi, Ralph Quatrano)

135. "Motion Coding in Turtle Retina," 2008 PI meeting for the NSF CRCNS program, University of Southern California, USA, June 1–3, 2008.

136. "Stability Analysis on Kuramoto Model of Coupled Oscillators," 17^{th} IFAC World Congress, Seoul, Korea, Regular Session on Nonlinear Systems I, pp. 9695–9700, July 7, 2008.

137. "Identification and Modelling of Co-Rhythmic Genes from Micro-Array Time Series Data," 17^{th} IFAC World Congress, Seoul, Korea, Poster Session on Bio and Social Systems, pp. 514–518, July 9, 2008.

138. "Generating Structure-Function Correlation by ICA-Based Mapping of Activation Patterns on Coregistered fMRI and FA-DTI," IEEE Asilomar Conference on Signals Systems and Computers, Biomedical Signal and Image Processing Track, Pacific Grove, California, pp. 1393–1396, October 26–29, 2008. (with S. Mitra, M. O'Boyle, F. Afrin, B. Nutter, M. Baker, R. Pal)

139. "Modelling Diurnal Rhythms with an Array of Phase Dynamic Oscillators," 10^{th} International Conference on Control, Automation, Robotics and Vision, Session FrA1 entitled 'Control and Modelling of Biological Systems', 19^{th} Dec., 2008, pp. 1391–1396, Proceedings of the ICARCV 2008, Hanoi, Vietnam. (with H. Pakrasi and W. Wang)

140. "Controlling Diurnal Rhythms by Light," 10^{th} International Conference on Control, Automation, Robotics and Vision, Session FrA1 entitled 'Control and Modelling of Biological Systems', 19^{th} Dec., 2008, pp. 1367–1372, Proceedings of the ICARCV 2008, Hanoi, Vietnam. (with H. Pakrasi and T. Elvitigala)

141. "Modelling and Simulation of Diurnal Biological Processes in Cyanobacteria," Session on Biological Systems I, 2009 American Control Conference, St. Louis, June 10–12, 2009, pp. 343–348. (with T. Elvitigala and H. Pakrasi)

142. "Human Eye Movement with and without the Listing's Constraint," Session on Biological and Bioinspired Systems, 2009 American Control Conference, St. Louis, June 10–12, 2009, pp. 1015–1020. (with R. Meegaskumbura and Mervyn P. B. Ekanayake)

143. "Dynamical Systems Modelling of Interactions in Cyanobacteria Diurnal Genes," Conference on 'Frontiers of Systems Biology in Engineering (FOSBE)', Aug. 9–12, 2009, Denver, Colorado. (with T. Elvitigala)

144. "Motion Encoding and Decoding in the Turtle Retina," European Control Conference, Aug. 23–26, 2009, Budapest, Hungary. (with Mervyn P. B. Ekanayake and P. S. Ulinski)

145. "Optimal Control and Tracking with Eye Movement Dynamics with and without the Listing's Constraint," pp. 4511–4516, Proc. of the 48^{th} IEEE Conference on Decision and Control, Dec. 16–18, 2009, Shanghai, China. (with R. Meegaskumbura, Mervyn P. B. Ekanayake)

146. "Bayesian Network Approach to the Study of Biological Processes in Cyanobacteria," pp. 3739–3744, Proc. of the 48^{th} IEEE Conference on Decision and Control, Dec. 16–18, 2009, Shanghai, China. (with T. R. Elvitigala, A. K. Singh and H. B. Pakrasi)

147. "To Tilt Your Head or Not To: Potentially," pp. 555–561, Session on *New Results on Computation and Control*, Proc. of the 19^{th} International Symposium on Mathematical Theory of Networks and Systems, July 5–9, 2010, ELTE University Congress Center, Budapest, Hungary. (with Indika Wijaysinghe)

148. "Dynamic Control of Human Eye on Head System," pp. 5514–5519, Session on *Control System Design*, Proc. of the 29^{th} Chinese Control Conference, July 29–31, 2010, Beijing, China. (with Indika Wijayasinghe)

149. "Application of Potent Potential Functions in Eye/Head Movement Control," Session on *Biological and Biomedical Systems II*, Proc. of the 49^{th} IEEE Conference on Decision and Control, pp. 1699–1704, Dec. 15–17, 2010, Atlanta, USA. (with Indika Wijayasinghe)

150. "Detection of Motion Direction using a Model of Turtle Retinal Patch," pp. 14151–14158, Poster session on Biological, Ecological, Social and Manufacturing Systems, Friday, Sept 2, 2011, 18^{th} IFAC World Congress, Milano, 28^{th} Aug. to 2^{nd} Sep. 2011. (with Mervyn P. B. Ekanayake)

151. "Head Movement Dynamics Under Gimbal Constraints," pp. 9680–9685, Regular session on Dynamics and Control of Biosystems, Wednesday, 31^{st}, Aug. 2011, 17:00–17:20, 18^{th} IFAC World Congress, Milano, 28^{th} Aug. to 2^{nd} Sep. 2011. (with Indika Wijayasinghe)

152. "Estimating the Speed and Motion Direction of Targets using a Model of the Turtle Retina," pp. 3032–3037, Proc. of the 50^{th} IEEE Conference on Decision and Control and European Control Conference, 12^{th} to 15^{th} Dec. 2011, Orlando, Florida, USA. (with Mervyn P. B. Ekanayake)

153. "Rotated gimbal like approximation of the human head movement dynamics," Paper # 105, Session SE-01 Systems in Biology, The 20^{th} International Symposium on Mathematical Theory of Networks and Systems, 9^{th} to 13^{th} July, 2012, Melbourne, Australia. (with Indika Wijayasinghe)

154. "Tracking and Optimal Control Problems in Human Head/Eye Coordination," Session on Biological Systems II, Paper # MoC21.1, pp. 2289–2295, Proc. of the 2013 American Control Conference, June 17^{th} to 19^{th}, 2013, Washington, DC, USA. (with Indika Wijayasinghe, Eugenio Aulisa, Stefan Glasauer and Olympia Kremmyda)

155. "Parameterizing the Eye Movement Dynamics on LIST and SO(3): How to move the singularities away," pp. 950–955, Proc. of the 32^{nd} Chinese Control Conference, July 26^{th} to 28^{th}, 2013, Xi'an, China.

156. "Binocular Eye Tracking Control satisfying Hering's Law," pp. 6475-6480, 52^{nd} IEEE Conference on Decision and Control, Firenze, Italy, Dec 10^{th} to 13^{th}, 2013. (with Indika Wijayasinghe)

157. "Optimal Control Problems in Binocular Vision," pp. 5283–5289, 19^{th} World Congress of the International Federation of Automatic Control, Cape Town, South Africa, Aug. 24^{th} to 29^{th}, 2014, submission number 2644 (www.ifac2014.org) (with Eugenio Aulisa and Methma Rajamuni), Regular session on Dynamics and Control in BioSystems, Tuesday, Aug. 26^{th}, $17:00 - 17:20$ hrs.

158. "Optimal Eye and Head Movement Control using q-parametrization," pp. 5290–5295, 19^{th} World Congress of the International Federation of Automatic Control, Cape Town, South Africa, Aug. 24^{th} to 29^{th}, 2014, submission number 2650 (www.ifac2014.org) (with Eugenio Aulisa and Sanath Darshana Kahagalage) Regular session on Dynamics and Control in BioSystems, Tuesday, Aug. 26^{th}, $17:20 - 17:40$ hrs.

159. "Asymptotically Stabilizing Potential Control for the Eye Movement Dynamics," 2014 Dynamic Systems and Control Conference, San Antonio, Texas, Oct 22^{nd} to 24^{th}, 2014, DSCC2014-5864 (with Takafumi Oki, Sanath Darshana Kahagalage, and Indika Wijayasinghe)

160. "Detection of Moving Targets in the Visual Pathways of Turtles using Computational Models," 7th International Conference on Information and Automation for Sustainability (ICIAfS' 14), Colombo, Sri Lanka, 22nd Dec, 2014. (with N. Perera and R. Anderson)

161. "Stabilization and Trajectory Tracking of Version and Vergence Eye Movements in Human Binocular Control," Proceedings of 2015 European Control Conference (ECC), pp. 1567 – 1574, July 15 – 17, 2015, Linz, Austria. (with Takafumi Oki)

162. "Human Head Regulation under Donders' Constraint using Feedback Linearization Approach," 47^{th} ISCIE International Symposium on Stochastic Systems Theory and its Applications, Waikiki Beach Marriott Hotel, Honolulu, Hawaii, USA, Dec. 5^{th} to 8^{th}, 2015.

163. "Optimal Tracking of Version and Vergence Eye Movements in Human Binocular Control," Session on Biomedical Systems II, European Control Conference, 16:40 – 17:00 pm, July 1, 2016, pp. 2410-2415, Aalborg, Denmark. (with Justin Ruths and Supratim Ghosh)

Invited Presentations

1. "Some Recent Results in Simultaneous System Design," AMS-IMS-SIAM Joint Summer Research Conference on Linear Algebra and its Role in System Theory, Bowdoin College, Brunswick, Maine, USA, July 29–August 4, 1984.

2. "A Geometric Approach to Simultaneous System Design: Parameter Insensitive Disturbance Decoupling by State and Output Feedback," 7^{th} International Symposium on the Mathematical Theory of Networks and Systems, Stockholm, Sweden, June 12, 1985.

3. "Some New Results on the Blending Problem," Workshop on Parametrization Problems in System Theory, University of Bremen, FRG, June 19, 1985.

4. "The Space of Linear Dynamical Systems as a Compact Subspace of a Real Grassmannian: Simultaneous Pole Assignment via Enumerative Geometry," Special Session on Algebraic Geometry and Control Theory, American Mathematical Society Meeting at the Claremont Colleges, Claremont, California, November 9, 1985.

5. "Transcendental and Interpolation Methods in Simultaneous System Design," 24th IEEE Conference on Decision and Control, December 11, 1985.

6. "Algebraic Geometric Methods in Simultaneous System Design," 24th IEEE Conference on Decision and Control, December 12, 1985.

7. "An Approach to Linear System Identification via Differential Geometric Methods," Systems Colloquium at the Systems Research Center, University of Maryland, College Park, MD 20742, November 11, 1986.

8. "Parametrization Problems in Non-Linear, Shift Variant Discrete Time Systems," 8th International Symposium on Mathematical Theory of Networks and Systems, Arizona, USA, June 15-19, 1987.

9. "Estimation and Control of Linear Time-Varying Systems, A Geometric Approach," Seminari di Teoria dei Sistemi e del Controllo, Dipartimento di Informatica e Sistemistica, Roma, Italy, June 24, 1987.

10. "Some New Results on Parametrization of Linear Dynamical Systems," Systems Colloquium at the Department of Mathematics, Universitat Regensburg, FRG, July 17, 1987.

11. "Differential Geometric Methods in Hybrid Parametrization Problem," Center for Mathematics and Computer Science, Amsterdam, The Netherlands, July 9, 1987.

12. "A survey of the Simultaneous Stabilization Problem," Invited presentation at Department of Automatic Control, Lund Institute of Technology, Lund, Sweden, July 13, 1987; Forschungsschwerpunkt Dynamische Systeme, Universitat Bremen, FRG, July 6, 1987; Universita di Padova, Instituto di Electtrotecnica e di Electtronica, Padova, Italy, July 26, 1987 and Department of Mathematics, Texas Tech University, Lubbock, Texas, April 7, 1988.

13. "Some New Results on Hybrid Parametrization of Linear Dynamical Systems," ICIAM' 87 Paris, June 29-July 3, sponsored jointly by GAMM, IMA, SIAM and SMAI.

14. "Robust Stabilization of Discrete Time-Varying Systems," Computation and Control Conference, Montana State University, Bozeman, Montana, August 3, 1988.

15. "Robust Stability of Discrete Time, Single Input Single Output, Linear Time Varying Systems," 27th IEEE Conference on Decision and Control, December 7-10, 1988.

16. "Some New Methods in the Problem of Compensating a Discrete Time, Time Varying System," SIAM Conference on Control in the 90's: Achievements, Opportunities and Challenges, San Francisco, California, May 17-19, 1989,

17. "Robust Stabilization of Linear Time Varying Systems," Conference on Linear Algebra, Numerical Linear Algebra and Applications, Northern Illinois University, Dekalb, Illinois, USA, April 30, 1989.

18. "Some New Results in Computer Vision," Invited Presentation at the second conference on Computation and Control, Montana State University, Bozeman, Montana, August 1-7, 1990.

19. "Convergence Analysis of Linear Dynamical Systems by High Gain and High Dynamic Compensator," 2nd SIAM Conference on Linear Algebra in Signals, Systems and Control, San Francisco, California, Nov. 5-8, 1990.

20. "Estimation of Motion and Shape Parameters of a Rigid Body from its Orthogonal and Perspective Projections," 2nd SIAM Conference on Linear Algebra in Signals, Systems and Control, San Francisco, California, Nov. 5-8, 1990.

21. "Global Stabilization of Discrete Time Nonlinear Systems," 2nd SIAM Conference on Linear Algebra in Signals, Systems and Control, San Francisco, California, Nov. 5-8, 1990.

22. "Simultaneous design problems in linear system theory," Invited Presentation at the Center for applied mathematics, University of Notre Dame, Notre Dame, Indiana 46556, April 16th, 1991.

23. "Perspective System Theory: A new perspective in machine vision," Invited Presentation at the Center for applied mathematics, University of Notre Dame, Notre Dame, Indiana 46556, April 18th, 1991.

24. "Observability problems in perspective system theory and its application to computer vision," Presented at the 2^{nd} NIU Conference on Linear Algebra, Numerical Linear Algebra, and Applications, Northern Illinois University, DeKalb, Illinois, May 5, 1991.

25. "Some New Results in Observer Design and its Application to Perspective Systems," Presented at the 9th Symposium on Energy Engineering Sciences, Argonne National Laboratory, Argonne, IL, May 13, 1991.

26. "A survey of simultaneous stabilization problems for linear time invariant systems and linear time varying systems," Presented at the Department of Control Engineering, Tokyo Institute of Technology, Japan, June 12, 1991, and at the Department of Information Sciences, Tokyo Denki University, Hatoyama-Machi, Hikigun, Saitama, Japan 350-03, 24^{th} June, 1991.

27. "Some new perspective on machine vision," Invited presentation at the the Department of Mathematical Engineering and Information Physics, University of Tokyo, Bunkyo-ku, Tokyo 113, Japan, June 10, 1991, the Department of Mechanical Engineering, Nagoya University, Japan on 14th June, 1991 and at the Department of Information Sciences, Tokyo Denki University, Hatoyama-Machi, Hikigun, Saitama, Japan 350-03, 25^{th} June, 1991.

28. "Problems in perspective system theory and its application to correspondence problems in machine vision," Invited presentation at the Beckmann Institute, University of Illinois at Urbana, Champaign. Dec. 18, 1991. Invited presentation at the General Robotics and Active Sensory Perception Laboratory (GRASP), University of Pennsylvania, 3401 Walnut Street, Philadelphia, PA 19104 on Feb. 19, 1992

29. "Perspective Problems and its Application to Computer Vision and System Theory," Invited presentation at the Department of Mechanical Engineering for Computer-Controlled Machinery, Faculty of Engineering, Osaka University, 2-1 Yamadaoka, Suita, Osaka 565, Japan, 25th July, 1992.

30. "Algebraic Geometric Methods in the Study of Line Based Correspondence Problems in Computer Vision" Invited presentation at the Department of Mechanical Engineering for Computer-Controlled Machinery, Faculty of Engineering, Osaka University, 2-1 Yamadaoka, Suita, Osaka 565, Japan, 27th July, 1992.

31. "A new nonlinear feedback controller for visually guided robotic motion tracking." Invited presentation at the Department of Mechanical Engineering for Computer-Controlled Machinery, Faculty of Engineering, Osaka University, 2-1 Yamadaoka, Suita, Osaka 565, Japan, 1st August, 1992.

32. "Some New Results in Computer Vision," Invited Presentation at the Third Conference on Computation and Control, Montana State University, Bozeman, Montana, August, 1992.

33. "Some New Problems in Computer Vision and its Connection to Perspective System Theory," Invited Presentation organized by the Department of Electrical Engineering, Indian Institute of Technology, Delhi, India on 5th August, 1993 and by the IEEE Kharagpur Chapter, Indian Institute of Technology, Kharagpur, India on 26th August, 1993 and by the Centre for Artificial Intelligence and Robotics, Bangalore, India on 1st September, 1993.

34. "On the Problem of Simultaneous Stabilization and Simultaneous Pole Assignment," "On Output Feedback Regulation and Disturbance Decoupling," and "On the Problem of Visually Guided Control of a Robot Arm," Invited Presentation in the Department of Electrical Engineering at Indian Institute of Technology, Kharagpur, India on 12th August, 1993, 17th August, 1993 and 24th August, 1993 respectively.

35. "Visually Guided Ranging from Observations of Points, Lines and Curves via an Identifier Based Nonlinear Observer," Invited Presentation in the Department of Mechanical Engineering at Indian Institute of Technology, Kharagpur, India on 25th August, 1993.

36. "Current Trends in the Field of Systems and Control," and "Visually Guided Control Problems in Robotics," Invited Presentation at the Institute of Armament Technology, Girinagar, Pune, India on 2nd September, 1993 and on 3rd September, 1993 respectively.

37. "Perspective Problems in Systems Theory and their Applications to Machine Vision," Invited Presentation in the Coordinated Science Lab., University of Illinois at Urbana- Champaign, Urbana, Illinois 61801 on 16th February, 1994.

38. "Nonlinear Estimation Schemes for Visual Servoing," Presentation at the Workshop on Visual Servoing: Achievements, Applications and Open Problems organized at the 1994 IEEE International Conference on Robotics and Automation, May 8-13, 1994, San Diego, California, USA.

39. "Visually Guided Control Problems: Present Technology and Future Prospects," Computation and Control IV, Montana State University, Bozeman, Montana, August 3-9, 1994.

40. "Parameter Identification Problems in Computer Vision," Thirty-Second Annual Allerton Conference on Communication, Control and Computing, September 28-September 30, 1994.

41. "On the Problem of Active Vision and Spatial Reasoning," Third Siam Conference on Control and its Applications, April 27-29, 1995, Saint Louis, Missouri.

42. "A Method of Parameter Identification for Perspective Systems and its Application to Machine Vision," Third Siam Conference on Control and its Applications, April 27-29, 1995, Saint Louis, Missouri. (with E. P. Loucks)

43. "Perspective Systems Theory and its Application to Machine Vision," Invited Presentation at the Department of Control Systems Engineering, Tokyo Institute of Technology, Oh-Okayama, Meguro-Ku, Tokyo 152, Japan, May 12, 1995.

44. "Observer Design and Identification of Systems with Internal Structure," Invited Presentation at the Department of Control Systems Engineering, Tokyo Institute of Technology, Oh-Okayama, Meguro-Ku, Tokyo 152, Japan, May 15, 1995.

45. "Temporal and Spatial Sensor Fusion in a Robotic Manufacturing Workcell," Invited Presentation at the Institute of Industrial Science, University of Tokyo, Roppongi, Minato-Ku, Tokyo 106, Japan, May 18, 1995.

46. "Some New Results in Nonlinear Systems Identification and Observer Design," Invited Presentation at the Graduate School of Science and Engineering, Tokyo Denki University, Hatoyama-Machi, Hiki-Gun, Saitama 350-03, Japan, May 19, 1995.

47. "Visually Guided Control and Tracking with some New Approaches to Sensor-Fusion," Invited Presentation at the Department of Mechanical Engineering, Okayama University, Tsushima-Naka, Okayama 700, Japan, May 22, 1995.

48. "A Realization Theory for Perspective Systems," Invited Presentation at NOLCOS '95, Tahoe City, USA, 26-28 June, 1995.

49. "Role of Dynamics in Machine Vision with applications to Parameter Estimation and Image Segmentation," Invited Presentation at Society of Engineering Science 32^{nd} Annual Technical Meeting, New Orleans, USA, October 29 - November 2, 1995.

50. "Visually Controlled Manipulation," Invited presentation at the workshop on 'Sensor-Referenced Control and Planning: Theory and Applications', IEEE International Conference on Decision and Control, New Orleans, USA, 1995.

51. "Perspective Systems Theory and Machine Vision," Invited presentation at the workshop on 'Sensor-Referenced Control and Planning: Theory and Applications', IEEE International Conference on Decision and Control, New Orleans, USA, 1995.

52. "Visually controlled manipulation of parts in a manufacturing work cell using a robotic manipulator," Invited Presentation at the 34^{th} IEEE Conference on Decision and Control, New Orleans, December 15, 1995.

53. "Some Problems in Simultaneous System Design with a view towards Hybrid Control," Mathematical Theory of Networks and Systems-96, June 24-28, 1996, The Ritz-Carlton, Saint Louis, Missouri, USA.

54. "Observation and Control in a Perspective Framework, Symposium on Current and Future Directions in Applied Mathematics," The University of Nortre Dame, Indiana, USA, April 18 - 21, 1996.

55. "Artificial Hearts: A Challenge to Control Engineers," Panel Discussion, 13th World Congress of IFAC International Federation of Automatic Control, June 30 - July 5, 1996.

56. "A Theory of Perspective Systems with applications to Machine Vision," Invited Presentation at the Department of Mathematical Engineering and Information Physics, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113 Japan, Oct. 29, 1996.

57. "A Theory of Perspective Systems with applications to Machine Vision," Invited Presentation at the Department of Control Systems Engineering, Tokyo Institute of Technology, Oh-Okayama, Meguro-Ku, Tokyo 152, Japan, Oct. 30, 1996.

58. "A Theory of Perspective Systems with applications to Machine Vision," Invited Presentation at the Division of Applied Systems Science, Kyoto University, Kyoto, 606 Japan, Nov. 1, 1996.

59. "Some Recent Results in Perspective Control and its Connection to the Riccati Flow," Invited Presentation at the Graduate School of Science and Engineering, Tokyo Denki University, Hatoyama-Machi, Hiki-Gun, Saitama 350-03, Japan, Nov. 5, 1996.

60. "Problems in Perspective Observability and its Connection to Popov-Belevitch-Hautus Test of Observability," Invited Presentation at the Graduate School of Science and Engineering, Tokyo Denki University, Hatoyama-Machi, Hiki-Gun, Saitama 350-03, Japan, Nov. 6, 1996.

61. "Planning and Control of Self Calibrated Manipulation for a Robot on a Mobile Platform," Invited Presentation at the Graduate School of Science and Engineering, Tokyo Denki University, Hatoyama-Machi, Hiki-Gun, Saitama 350-03, Japan, Nov. 7, 1996.

62. "A Theory of Perspective Systems with applications Machine Vision," Invited Presentation at the Graduate School of Science and Engineering, Tokyo Denki University, Hatoyama-Machi, Hiki-Gun, Saitama 350-03, Japan, Nov. 8, 1996.

63. "Cross-Ratio Dynamics and its Application to Problems in Visually Guided Control," Invited presentation at the Department of Mathematics, Texas Tech University, Lubbock, Texas, February 3, 1997.

64. "Some New Results in Perspective Control," Invited Presentation at the Royal Institute of Technology, Stockholm, Sweden, May 30, 1997.

65. "On Controllability and Observability of Perspective Systems," Invited Presentation in the Department of Electrical Engineering at Indian Institute of Technology, Kharagpur, India on July 3, 1997.

66. "Robotic Manipulation in an Uncalibrated Environment," Invited Presentation in the Department of Electrical Engineering at Indian Institute of Technology, Kharagpur, India on July 4, 1997.

67. "Cross Ratio Dynamics and Controllability Problems in Perspective Systems," Invited Presentation at the Graduate School of Science and Engineering, Tokyo Denki University, Hatoyama-Machi, Hiki-Gun, Saitama 350-03, Japan, Oct. 28, 1997.

68. Perspective Systems Theory with Applications to Machine Vision and Control, Laboratory for Information Representation, Frontier Research Program, The Institute of Physical and Chemical Research, RIKEN, Hirosawa 2-1, Wako-shi, Saitama 351-01, Japan, Oct. 30, 1997.

69. "Intelligent Robotic Manipulation with Hybrid Position/Force Control in an Uncalibrated Workspace," Invited Presentation at the IEEE Tokyo Chapter RAS meeting, Nov. 6, 1997. Invited Presentation at the Department of Machine Intelligence and Systems Engineering,

Tohoku University, Aza-aoba, Aramaki, Sendai 980, Japan, Nov. 20, 1997. Invited Presentation at the Department of Robotics, Ritsumeikan University, Noji-higashi 1-1-1, Kusatsu, Shiga 525-77, Japan, Nov. 27, 1997.

70. "Robotic Manipulation with Visually Guided Position and Force Feedback," Invited Presentation at the Department of Control Systems Engineering, Tokyo Institute of Technology, Oh-Okayama, Meguro-Ku, Tokyo 152, Japan, Nov. 13, 1997.

71. "Vision Guided Estimation, Control and Tracking," Invited Presentation at the Department of Organismal Biology and Anatomy, 1027 East 57th Street, The University of Chicago, Chicago, Illinois 60637, Jan. 8, 1998.

72. "A Cyclopian View on Machine Vision," Plenary Presentation at the 'Mathematics of the Life Sciences', Texas Tech University, Jan. 30, 1998.

73. "A Cyclopian View towards Observing a Homogeneous Dynamical System," Invited Presentation at the 6^{th} conference Computation and Control, Montana State University, Bozeman, Montana, August 4-7, 1998.

74. "Kronecker Indices and Canonical Forms with Application to Motion Estimation," Invited Presentation at the Graduate School of Science and Engineering, Tokyo Denki University, Hatoyama-Machi, Hiki-Gun, Saitama 350-03, Japan, Nov. 13, 1998.

75. "Modelling and Signal Processing in the Visual Cortex," Tokyo Denki University, Hatoyama-Machi, Hiki-Gun, Saitama 350-03, Japan, Aug. 20, 1999.

76. "Control and Signal Processing with a Population of Neurons," April 13, 2000, KTH, Sweden.

77. "Visual Tracking Systems," Tutorial workshop at the American Control Conference, Chicago June 26-27, 2000.

78. "Dynamics and Control with a Population of Neurons," Plenary presentation at the Workshop on Nonlinear Control systems, Beijing, 9th and 10th July, 2000.

79. "Control and Signal Processing in the Turtle's Visual Cortex, Center for Computational Vision and Control," Yale University, New Haven, CT 06520, January 12, 2001.

80. "Parameter Estimation with Vision and Range," The Control and Dynamical Systems Invited Lecture Series, Center for Dynamics and Control of Smart Structures, Institute of Systems Research, University of Maryland at College Park, MD 20742, April 13, 2001.

81. "Motion and Shape Estimation with Vision and Range," Department of Electrical Engineering, Brown University, April 19, 2001.

82. Modelling and Estimation Problems in the Turtle Visual Cortex, Dipartimento di Elettronica e Informatica, Universita di Padova, via Gradenigo, 6/A 35131 Padova, Italy, June 15, 2001.

83. "Visual sensing with lines and algebraic curves," Avviso di Seminario, Dipartimento di Informatica e Sistemistica "Antonio Ruberti", Roma, Italy, June 21, 2001.

84. " Dynamic Modelling and Control with a Population of Cells: A Neuro-Biological Perspective," Invited Plenary Lecture at the Dalian University of Technology, 20^{th} Chinese Control Conference, Dalian, China, August 10, 2001.

85. "Dynamic Pose Estimation with Cameras and Inertial Sensors," Invited presentation at the Chinese Academy of Sciences, Beijing, China on 14^{th} August, 2001.

86. "Analysis of Cortical Waves in Turtle Visual Cortex," Presented at the mini symposium on *Computational models of neural functions in the brain*, First SIAM conference on the Life Sciences, Sept. 24-26, 2001, Boston, USA.

87. "Dynamical Problems in Animal Vision: Modelling the Turtle Visual Cortex," Special presentation at the joint symposium for Advanced Science and Technology (JSAST),Tokyo, October 2001.

88. "What do Cortical Waves Encode in the Turtle Visual Cortex?," Mathematics and Statistics Red Raider Mini-Symposium Series, Texas Tech University, November 9^{th}, 2001.

89. "Perception and Control Problems in Biology and Engineering," March 1, 2002, Department of Aerospace and Mechanical Engg., Boston University, USA.

90. "Motion and Shape Estimation with Vision and Range," March 20, 2002, Department of Electrical Engg., University of California, Riverside, USA.

91. "Estimation with Retinal and Cortical Vision," April 5, 2002, Department of Electrical Engg., University of Texas, San Antonio, USA.

92. "Neural Coding and Decoding in the Visual Cortex of Freshwater Turtles," Workshop on Neural Coding, Mathematical Biosciences Institute, Ohio State University, Columbus, Ohio, Feb. 13, 2003.

93. "Appearance Dynamics and Internal Models," Mittag-Leffler Workshop on *Vision from a Mathematical Perspective*, Mittag Leffler Institute, Stockholm, Sweden, March 12, 2003.

94. "Dynamics and Optimal Control for the Eye Movement," Department of Mathematical Engineering and Information Physics, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113 Japan, Oct. 14, 2003 and Tokyo Denki University, Hatoyama-Machi, Hiki-Gun, Saitama 350-03, Japan, Oct. 15, 2003.

95. "Signal Processing with Biological Neurons," Dept. of Biochemistry and Molecular Biology, Saitama University, October 17, 2003."

96. "Riccati Dynamics of Free Form Curves," Texas Tech University, Lubbock, Texas., Nov. 14, 2003.

97. "Network Models with Microarray Expression Data," presented at the EMSL Membrane Biology Grand Challenge, Systems Analysis of the Dynamics of Membrane Architecture, Composition and Function in Cyanobacteria, Pacific Northwest National Laboratory, Richland, Washington, USA, Dec. 7, 2004.

98. "Light Induced Gene Expression Dynamics in Cyanobacteria," presented at the 2^{nd} COE workshop on Human Adaptive Mechatronics (HAM), 2005, Organized by the Center of Excellence Project, Tokyo Denki University, Hatoyama-machi, Hiki-gun, Saitama 350-0394, Japan.

99. "Computation and Control Problems in the Visual Pathway," Seminar presented at the Dept. of Electrical Engg., McGill University, Quebec, Canada, March 24, 2005.

100. "Systems Modelling in Computational Biology," Special Session on Future Directions in Mathematical Systems and Control Theory, American Mathematical Society's 2005 Spring Central Section Meeting # 1006, Lubbock, Texas, April 9^{th}, 2005.

101. "Modelling and Identification in the Visual Cortex," KTH, Sweden, 13^{th} May 2005.

102. "Dynamic Modelling in the Gene Regulatory Network," NSF Workshop, Washington University, Saint Louis, MO, USA, June 1^{st} 2005.

103. "Modelling and Control Problems in the Visuomotor Pathway," Workshop on Modelling and Control of Complex Systems, Ayia Napa, Cyprus, June 30^{th} 2005.

104. "Bio Inspired Sensor Networks in Formation Sensing," Department of Electrical Engineering, University of Missouri, Rolla, USA, 13^{th} October, 2005.

105. "Dynamics and Control Problems in Formation Sensing, Image Encoding and Memory," Department of Mathematics, Texas Tech University, Lubbock, Texas, USA, 10^{th} November, 2005.

106. "Dynamical Systems Approach to Gene Networking," Summer Workshop in Nove Hrady, Department of Biological Dynamics, Institute of Systems Biology & Ecology and Institute of Physical Biology, Zamek 136, 37333 Nove Hrady, Czech Republic, 31^{st} July, 2006.

107. "Modelling and Estimation Problems in the Visual Cortex," 4^{th} COE workshop on Human Adaptive Mechatronics, Tokyo Denki University, Hatoyama Machi, Saitama 350-0394, Japan, March 2, 2007.

108. "Control and Estimation Problems from Biology," Dept. of Mathematical Engineering and Information Physics, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113 Japan, Sep. 14, 2007.

109. "Coupled Oscillation Models in the Study of Circadian Rhythms," RIKEN, BMC Research Center, Biological Control Systems Lab. 2271-130 Anagahora, Shimoshidami, Moriyama-ku, Nagoya, 463-0003 Japan, Sep. 15, 2007.

110. "Modelling and Control in the Turtle Retina and the Visual Cortex," Colgate University, Hamilton, NY, USA, March 5^{th}, 2008.

111. "Optimal Control Problems in Eye Movement," Graduate School of Science and Engineering, Tokyo Denki University, Hatoyama-Machi, Hiki-Gun, Saitama 350-03 Tokyo, Japan, Nov. 12^{th}, 2008.

112. "Optimal Control Problems in Eye Movement and Gaze Control," Academy of Mathematics and System Sciences, Chinese Academy of Sciences, No. A1, Nansijie, Zhongguancun, Beijing 100080, China, Nov. 17^{th}, 2008.

113. "Vision and Control from a Turtle's Point of View," Presented at the Plenary Panel Discussion on 'Control of Complex System', Dec. 18^{th}, 10^{th} International conference on Control, Automation, Robotics and Vision, ICARCV 2008, Hanoi, Vietnam.

114. "On the Problem of Moving Eye Optimally," Invited Presentation at the Royal Institute of Technology, Stockholm, Sweden, Feb 2, 2009.

115. "Some Problems in Optimal Eye Movement Control," Invited presentation at the University of California at Santa Barbara, California, May 26, 2009.

116. "Optimal Control Problems in Eye Mechanics," University of Wurzburg, Germany, May 15, 2009.

117. "Looking Through Your Eyes: Optimally," University of Texas at Arlington, Dallas, March 5^{th}, 2010 and Texas Tech University, Lubbock, April 14^{th}, 2010.

118. "How to keep your head straight: The Donders' way," 19^{th} May, 2010, Institute of Automatic Control Engineering (LSR), Technische Universität München, Munich, Germany.

119. "Moving the head: The Donderian way," Seminar presented at the Electrical Engineering Dept., Texas Tech University, Lubbock, TX, USA, 8^{th} April, 2011.

120. "Moving the head: The Donderian way," Applications of Differential Equations and Dynamical Systems in Immunology and Medicine, Part II, (MS50), 23^{rd} May, 2011, (organizers L. Ritter, A. Ibragimov, J. R. Walton), SIAM Conference on Applications of Dynamical Systems, (DS11), 22^{nd} May to 26^{th} May, 2011, Snowbird Ski and Summer Resort, Utah, USA.

121. "Modelling and optimal control with the human eye and head," Session on 'Sensorimotor Interaction and Applications,' Munich Multisensory Perception Symposium, 9:30 am to 10:00 am, June 26^{th}, 2011.

122. "Head movement dynamics satisfying Donders' constraint and its connection with Fick Gimbals," (MS08) Control of Biological Movement, 25^{th} July, 2011, (organizer W. S. Levine), SIAM Conference on Control and Application, (CT11) 25^{th} July to 27^{th} July, 2011, Hyatt Regency Baltimore, Baltimore, Maryland, USA. (Presented by Indika Wijayasinghe)

123. "Microcircuits in the turtle retinocortical pathway," Panel Discussion on Systemic Neuroscience and Biomedical Engineering at the 50^{th} Anniversary of the Lehrstuhl für Steuerungsund Regelungstechnik (Institute of Automatic Control Engineering), Technische Universität München, Munich, Germany. 16^{th} September, 2011.

124. "Potential and Optimal Control of Human Eye and Head Movement Satisfying Donders' Constraint," 10:00am to 11:00am, May 16^{th}, 2012, Room 405, Siyuan Bldg., Institute of Systems Science, Chinese Academy of Sciences, 100190 Beijing, China, People's Republic.

125. "Detection of motion direction of targets using a turtle retinal patch model," Session SE-15 Uwe Helmke Techfest III, The 20^{th} International Symposium on Mathematical Theory of Networks and Systems, July 10^{th}, 2012, Melbourne, Australia.

126. "BioMechanical Control of Human Eye and Head Movement," 16:00pm to 17:00pm, July 12^{th}, 2012, School of Electrical and Telecommunications Engg., Univ. of New South Wales, Kensington 2052, Australia.

127. "Eye/Head Movement Dynamics Satisfying the Donders' Law," Special Session on Dynamics in Complex Biological Systems, The 9^{th} AIMS Conference on Dynamical Systems, Differential Equations and Applications, Orlando, Florida, USA, July 1^{st} to 5^{th}, 2012. (with Eugenio Aulisa and Akif Ibragimov; talk delivered by Indika Wijayasinghe on 2^{nd} July at 15:00pm to 15:30pm)

128. "Biomechanical Control of Human Eye and Head Movement," 15:40pm to 16:05pm, August 27^{th}, 2012, U. Jönsson Memorial Conference, Division of Optimization and Systems Theory, Dept. of Mathematics, KTH Royal Institute of Technology, Stockholm, Sweden.

129. "A Tale of the Moving Head: How the Head Chases the Eye," Abstract Number 1085-34-209, Special Session on Geometrical Methods in Mechanical and Dynamical Systems, IV (code SS 3A), Meeting # 1085, AMS Fall Western Sectional Meeting, Tucson, Arizona, Sunday, 3:00pm to 3:25pm October 28^{th}, 2012 (joint work with Indika Wijayasinghe).

130. "Potential and optimal control of human head movement", 16:30pm to 17:20pm, Oct. 8^{th}, 2013, Dept. of Mechanical and Automation Engg., The Chinese University of Hongkong, Shatin, Hongkong; 16:30pm to 17:20pm, Dec. 10^{th}, 2013, Dept. of Automatic Control, University of Genova, Genova, Italy.

131. "Optimally Controlling the Human Eye/Head Complex", 4pm to 5:30pm, Jan. 27^{th}, 2014, Geometry Seminar, Department of Mathematics and Statistics, Texas Tech University, Lubbock, TX, USA.

132. "Optimal control problems in eye and head movement control", 1100^{th} AMS Sectional Meeting, Texas Tech University, Lubbock, TX, April 12^{th}, 2014.

133. "Optimal control problems with human binocular vision", Center for Information and Systems Engineering, Boston University, MA, USA, Nov. 13^{th}, 2014.

134. "Optimal control problems with human binocular vision", Electronics and Computer Science, University of Southampton, Southampton SO17 1BJ, UK, Nov. 19^{th}, 2014.

135. "Optimal control problems in camera network: Lessons from binocular vision", Fifth Floor, Dunham Lab., Yale University, USA Dec. 8^{th}, 2014.

136. "Emergent Problems in Systems and Control: A Mathematical Perspective", Dept. of Mathematics, Dartmouth University, USA, Feb. 9^{th}, 2015.

137. "Bio-Mechanics of Head Movement: A Geometric Perspective", Electrical and Systems Engg., Washington University, St. Louis, USA, May 8^{th}, 2015.

138. Invited as an opponent to Kungliga Tekniska Hogskolan, Stockholm, Sweden for the PhD defense of Johan Markdahl, Nov. 6^{th}, 2015.

139. "Target Tracking and Binocular Vision Control with Human Head and Eye", Department of Mathematics, University of Moratwa, Sri Lanka, Dec. 11^{th}, 2015.

140. "Nonlinear Control of Human Head Movement using State Feedback Linearization", University of Peradeniya, Sri Lanka, Dec. 15^{th}, 2015.

141. "Emergent Problems in Systems and Control: A Mathematical Perspective", University of Peradeniya, Sri Lanka, Dec. 16^{th}, 2015.

142. "Binocular Control Challenges", Texas Systems Day Celebration, Cockrell School of Engineering, The University of Texas at Austin, TX 78712-1462, April 8^{th}, 2016.

143. "Optimal Control Problems in Binocular Vision", Tokyo-Senju Campus of Tokyo Denki University, Tokyo, Japan, May 16^{th}, 2016, 13:00pm - 14:00pm.

144. "Nonlinear Control Problems in Human Head Rotation and Binocular Vision", Kyoto University, Kyoto, Japan, May 18^{th}, 2016.

145. "Emergent Problems in Systems and Control: A Mathematical Perspective", Hatoyama Campus of Tokyo Denki University, Tokyo, Japan, May 20^{th}, 2016, 15:10pm - 16:00pm.

146. "Optimal Control Strategies in Human Eye and Head Movement", Kagawa University, Takamatsu City, Japan, May 23rd, 2016, 13:00pm - 14:30pm.

147. "Optimal Control Strategies for Human Eye Movement: Minimum Energy or Arc Length?", Tokyo Institute of Technology, Tokyo, Japan, May 25^{th}, 2016, 13:30pm - 14:30pm.

148. "Feedback linearization and optimal control of human head rotation satisfying Donders' constraint," Kwan Chao-Chih Distinguished Lecturer, Institute of Systems Science, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, 100190 Beijing, China, June 17^{th}, 2016, 10:00am - 11:00am.

149. "Systems and Control Problems in Biology and Neuroscience," Shenyang Institute of Automation, Chinese Academy of Sciences, Shenyang, China, July 8^{th}, 2016, 9:30am - 11:00am.

150. "Feedback Linearization and Optimal Control of Human Head Rotation Satisfying Donders' Constraint," College of Electrical Engg., Zhejiang University, Hangzhou, China, July 13^{th}, 2016, 11:00am - 12:00am.

151. "Human head movement gaits satisfying Donders' law: A feedback linearization approach to orientation control," Beijing Institute of Technology, Beijing, China, July 18^{th}, 2016, 10:00am - 11:00am.

152. "Feedback linearization and optimal control of human head rotation satisfying Donders' constraint," Chengdu School of Automation Engg., University of Electronic Science and Technology of China, Chengdu, China, July 26^{th}, 2016, 15:00 - 16:00.

153. "A transverse feedback linearization approach to orientation control with applications to human head movement," Electrical and Computer Engineering Department, University of Texas at San Antonio, TX, USA, Nov. 4^{th}, 2016.