Kemalettin Erbatur

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Kemalettin Erbatur received double major B.S. (honors) degrees in electronic engineering and mathematics from Bogaziçi University, Istanbul, Turkey, the M.Sc. degree in control systems from Imperial College, London, U.K, and the Ph.D. degree in electronics engineering from Bogazici University, in 1992, 1993 and 2000, respectively.

In 1993, he joined the Robotics and Automation Group, TUBITAK Marmara Research Centre, Gebze-Kocaeli, Turkey. In 1997, he was promoted as the leader of this group. After his Ph.D. education, between 2000 and 2002, he had a visiting researcher position at NIRO-The New Industry Research Organization, Kobe, Japan, followed by a visiting faculty position at the Electrical and Computer Engineering Department, Yokohama National University. In 2002, he became a faculty member in the Faculty of Engineering and Natural Sciences, Sabanci University. For a period in 2003, he was a collaborator of the International Rescue System Institute, Kobe, Japan as a faculty of Sabanci University.

He offers courses on robotics, automation and control. His primary research interest is in intelligent motion control and humanoid robots. He is the author of more than 60 papers which have appeared in conference proceedings and journals.

Educational Background

1993-2000	**Ph.D. in Electrical-Electronics Engineering**, Bogazici University, Istanbul, Turkey Thesis: "A Study of Indirect Fuzzy Sliding Mode Controllers for Robotic Manipulators"
1992-1993	**M.Sc. in Control Systems**, Electrical-Electronics Engineering Department, Imperial College, University of London, London, U.K. Thesis: “Feedback Linearization Control for Flexible Joint Robotic Manipulators”
1987-1992	Double Major: **B.S. in Electrical-Electronics Engineering** and **B.S. in Mathematics** Bogazici University, Istanbul, Turkey Graduation Project: “PC Card Design for Position and Velocity Information Acquisition for a Four dof Robotic Manipulator”
1980-1987	German Language Prep., Secondary and High School Education Istanbul Erkek Lisesi, Istanbul, Turkey

Languages

Turkish (Mother), English (Very good), German (Very good)

Research Interests

Robot Dynamics Modeling
Industrial Robotics and Automation
Walking Robots
Mobile Robots
Sliding Mode Control
Fuzzy Control and Adaptation Systems
Force Control

Journal Papers

1. Erbatur K., U. Seven, E. Taskiran, O. Koca, M. Yilmaz, M. Unel, G. Kiziltas, A. Sabanovic and A. Onat, "Design and Control of the Humanoid Robot SURALP," accepted for publication in the Turkish Journal of Electrical Engineering and Computer Sciences.
2. Erbatur, K., B. Calli, "Adaptive Fuzzy Boundary Layer Tuning for Sliding Mode Controllers and Its Application on a Direct Drive Robot", Soft Computing - A Fusion of Foundations, Methodologies and Applications, Volume 13, Number 11, pp. 1099-1111, September, 2009 ,
3. Erbatur K., Kurt O., "Natural ZMP Trajectories for Biped Robot Reference Generation," IEEE Transactions on Industrial Electronics, Vol. 56, No. 3, pp. 835-845, March 2009.
4. Takemura, F., M. Enomoto, K. Denou, K. Erbatur, U. Zweirs, S. Tadokoro, "A human body searching strategy using a Cable-driven robot with a electric wave coming direction finder at major disaster," Advanced Robotics- The International Journal of the Robotics Society of Japan, Vol. 19, No. 3, pp. 331-347, 2005
5. Erbatur, K., O. Kaynak, "Adaptive Fuzzy Systems in Chattering Free Sliding Mode Control for Robotic Manipulators", IEEE/ASME Transactions of Mechatronics, Vol. 6, No. 4, pp. 474-482, Dec. 2001
6. Kaynak, O., K. Erbatur, M. Ertugrul, "The Fusion of Computationally Intelligent Methodologies and Sliding Mode Control - A Survey", IEEE Transactions on Industrial Electronics, Vol. 48, No. 1, pp. 4-17, Feb. 2001.
7. Erbatur, K., O. Kaynak, A. Sabanoviç, "A Study on Robustness Property of Sliding Mode Controllers: A Novel Design and Experimental Investigations", IEEE Transactions on Industrial Electronics, pp. 1012 1018, Vol. 46, No. 5, Oct 1999
8. Sabanovic, A., K. Jezernik, K. Erbatur, O. Kaynak, "Soft Computing Techniques in Discrete-Time Sliding Mode Systems Automatika, Journal for Control, Measurement, Electronics, Computing and Communications, v. 38, no;1-2, pp. 7-14, 1997
9. Erbatur, K., O. Kaynak, "Fuzzy Adaptive Control of a Direct Drive Manipulator", Journal of Robotics and Autonomous Systems, No. 19 .pp 215-227, 1996.

Contribution to Edited Books

1. Erbatur, K., Y. Yıldız, A. Sabanovic, "Sliding Modes in Fuzzy and Neural Network Systems," in Variable Structure Systems: From Principles to Implementation, A. Sabanovic, L. M. Fridman and S. Spurgeon (Eds.), IEE, London, pp. 245-264, 2004.
2. Ertugrul, K. Erbatur and O. Kaynak, "A Computational Intelligence Approach to Sliding Mode Control of Robotic Manipulators," in Recent Advances in Mechatronics, O. Kaynak, S. Tosunoglu and M. Ang (Eds.), Springer-Verlag, Singapore, pp. 176-191,2000.

Conference Papers (International)

1. Taskiran, E., M. Yilmaz, O. Koca, U. Seven and K. Erbatur, "Trajectory Generation with Natural ZMP References for the Biped Walking Robot SURALP," accepted for publication in Proc. 2010 IEEE International Conference on Robotics and Automation, ICRA 2010, Alaska, USA.

2. Erbatur, K., U. Seven, E. Taşkiran, Ö. Koca, M. Yilmaz, G. Kızıltaş, M. Ünel, A. Sabanovic, A. Onat, "SURALP: A New Full-Body Humanoid Robot Platform", IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2009, St. Louis, MO, USA, October 2009.
3. Erbatur, K., O. Koca, E. Taskiran, M. Yılmaz and U. Seven, "ZMP Based Reference Generation for Biped Walking Robots," presented in International Conference on Intelligent Control, Robotics, and Automation, ICICRA 2009, Venice, Italy October 28-30, 2009, published in World Academy of Science Engineering and Technology, Vol. 58, pp. 546-553, October 2009.
4. Taskiran, E., U., Seven, O. Koca, M. Yilmaz and K. Erbatur, "Walking Control of a Biped Robot on an Inclined Plane," Proc. ICONS 2009 - The 2nd International Conference on Intelligent Systems and Control, Istanbul, Turkey, September 2009.
5. Çallı, B., Erbatur, K. and Unel, M., "Visually Aided Force Control with Fuzzy Parameter Tuning", Proc. ICONS 2009 - The 2nd International Conference on Intelligent Systems and Control, Istanbul, Turkey, September 2009.
6. Erbatur, K., U. Seven, E. Taskiran, Ö. Koca, G. Kızıltaş, M. Ünel, A. Sabanovic, A. Onat, "SURALP-L, The Leg Module of a New Humanoid Platform," Proc. IEEE/RAS International Conference on Humanoid Robots, pp. 168-173, Daejeon-Güney Kore, December 2008.
7. Erbatur, K., E. Taskiran, U. Seven, Ö. Koca, "Moving Single Support ZMP Trajectories for Humanoid Robot Walking Reference Generation," Proc. IASTED International Conference on Intelligent Systems and Control, pp. 146-151, Orlando A.B.D., November 2008.
8. Erbatur, K., U. Seven, E. Taskiran, Ö. Koca "Walking Trajectory Generation and Force Feedback Control for The Humanoid Robot Leg Module Suralp-L" Proc. IASTED International Conference on Intelligent Systems and Control, pp. 152-157, Orlando A.B.D., November 2008.
9. Çallı, B., K. Erbatur, M. Ünel, "Visual Servoing and Force Control Integration with Fuzzy Parameter Adjustment," Proc. IASTED International Conference on Intelligent Systems and Control, pp. 169-174, Orlando A.B.D., Novermber 2008.
10. Erbatur, K. and U. Seven, "An Inverted Pendulum Based Approach to Biped Trajectory Generation with Swing Leg Dynamics," Proc. IEEE-RAS 7th International Conference on Humanoid Robots 2007, Pittsburgh, USA, December 2007.
11. Erbatur, K. and B. Calli, "Fuzzy Boundary Layer Tuning as Applied to the Control of a Direct Drive Robot," Proc. Int. Conf. on Industrial Electronics, Control and Instrumentation, IECON 2007, Taipei, Taiwan.
12. Erbatur, K. and U. Seven, "Humanoid Gait Synthesis With Moving Single Support Zmp Trajecories," Proc. Int. IASTED Conf. on Robotics and Applications, Aug. 2007, Würzburg, Germany.
13. Erbatur, K. and O. Kurt, "Humanoid Walking Robot Control with Natural Zero Moment Point References," Proc. Int. Conf. on Industrial Electronics, Control and Instrumentation, IECON 2006, Paris, France.
14. Kurt, O. and K. Erbatur, "Biped Robot Reference Generation with Natural ZMP Trajectories," Proc. The 9th IEEE International Workshop on Advanced Motion Control, AMC 2006, Istanbul, Turkey.
15. Ayhan, O. and K. Erbatur, "Biped Walking Robot Hybrid Control with Gravity Compensation," Proc. Int. Conf. on Industrial Electronics, Control and Instrumentation, IECON 2005, Raleigh, USA
16. Ayhan, O. and K. Erbatur, "Humanoid Robot Walking Trajectory Generation And Hybrid Control ," Proc. European Conference on Mobile Robots, ECMR 2005, Ancona, Italy
17. Ayhan, O. and K. Erbatur, "Biped Robot Walk Control via Gravity Compensation Techniques," Proc. Int. Conf. on Industrial Electronics, Control and Instrumentation, IECON 2004, Pusan, Korea
18. Takemura, F., M. Enomoto, K. Denou, K. Erbatur, U. Zweirs, S. Tadokoro "Proposition of a Human Body Searching Strategy Using a Cable-Driven Robot at Major Disaster," Proc. IROS 2004, 2004 IEEE/RSJ International Conference on Intelligent Robots and Systems, Sendai-Japan.
19. Bebek, Ö. And K. Erbatur, "A Gait Adaptation Scheme for Biped Walking Robots," Proc. The 8th IEEE International Workshop on Advanced Motion Control, AMC 2004, Kawasaki, Japan.
20. El-Kahlout, ,Y. and K. Erbatur, "On-line Gait Adaptation for Biped Walking Robots in Face of Changing Payloads," Proc. Int. Conf. on Industrial Electronics, Control and Instrumentation, IECON 2003, Virginia, USA
21. El-Kahlout, ,Y. and K. Erbatur, "Reflex-Adaptation for Biped Walking Robots in Face of Changing Payloads," CD Proc. FIRA World Congress 2003, Vienna, Austria

22. Erbatur, K. and A. Kawamura, “A New Penalty Based Contact Modeling and Dynamics Simulation Method as Applied to Biped Walking Robots,” CD Proc. FIRA World Congress 2003, Vienna, Austria
23. Bebek, O. and K. Erbatur, “An Adaptive Fuzzy System for Tuning Biped Robot Gate Parameter,” CD Proc. FIRA World Congress 2003, Vienna, Austria
24. Bebek, O. and K. Erbatur, “A Fuzzy System for Gait Adaptation of Biped Walking Robots,” Proc. CCA 2003, IEEE Conference on Control Applications, Istanbul, Turkey
25. Erbatur, K. and A. Kawamura, “Chattering Elimination Via Fuzzy Boundary Layer Tuning,” Proc. Int. Conf. on Industrial Electronics, Control and Instrumentation, IECON 2002, Sevilla, Spain
26. Erbatur, K. and A. Kawamura, “Chattering Minimization via On-Line Boundary Layer Thickness Tuning,” Proc. VSS 2002, VSS 2002, International Workshop on Variable Structure Systems, Bosnia and Herzegovina, July 17-19, 2002.
27. Erbatur, K., A. Okazaki, K. Obiya, T. Takahashi and A. Kawamura, “A Study on the Zero Moment Point Measurement for Biped Walking Robots,” Proc. AMC 2002, 7th International Workshop on Advanced Motion Control, July, 2002, Maribor, Slovenia
28. Erbatur, K., T. Takahashi, A. Okazaki and A. Kawamura, “Design and Application of FSR Based ZMP Sensors for the Gait Generation of Biped Walking Robots,” Proc. ITM 2001, International Conference on Information Technologies in Mechatronics, pp. 185-190, October 1-3, 2001, Istanbul, Turkey
29. Erbatur, K. and A. Kawamura, “Automatic Tuning of the Boundary Layer Thickness for Sliding Mode Motion Controllers via the Use of Chattering Detection” Proceedings of JIASC 2001, Japanese Industrial Applications Conference, August, 22-24, 2001, Matsue, Japan, pp 1557-1562, 2001.
30. Erbatur, K., O. Kaynak, "Fuzzy Identifier Based Inverse Dynamics Control of a Direct Drive Manipulator" Proceedings of the 2nd Int. Conf on Recent Advances in Mechatronics (ICRAM'99), May 24 - 26, Istanbul, Turkey, pp.257-262, 1999.
31. Erbatur, K., O. Kaynak and A. Sabanovic, "Robust Control of a Direct Drive Manipulator," Proc. of the 1998 IEEE ISIC/CIRA/ISAS Joint Conference, Gaithersburg, MD, Sept. 14-17, 1998, pp. 108-113, 1998
32. Erbatur, K., O. Kaynak, A. Sabanoviç, I.Rudas, “Fuzzy Identifier Based Inverse Dynamics Control for an 3-dof Articulated Manipulator”, Proc. of IEEE 23rd Int. Conf. on Industrial Electronics, Control and Instrumentation; IECON'97, Nov. 10-14, 1997, New Orleans, USA, v.3, pp. 1052-1056, 1997.
33. Erbatur, K., O. Kaynak, A. Sabanoviç, I.Rudas, “Design Automation of a Fuzzy PID Robot Controller via Genetic Computing”, Proc. of the 2nd Asian Control Conference, July 22-25, 1997, Seoul, Korea, v.III, pp. 275-278, 1997.
34. Erbatur, K., O. Kaynak, A. Sabanoviç, I.Rudas, “An Inverse Dynamics Based Robot Control Method Using Fuzzy Identifiers”, Proceedings of the 1st IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM'97) June 16-20, 1997, Waseda University, Tokyo, JAPAN,1997.
35. Erbatur, K., O. Kaynak, A. Sabanoviç, I.Rudas,”Fuzzy Parameter Adaptation for a Sliding Mode Controller as Applied to the Control of an Articulated Arm”, Proc. of the 1997 IEEE Int. Conf. on Robotics and Automation Conference (ICRA'97), Albuquerque, USA, April 1997, pp. 817-822, 1997.
36. Erbatur, K., O. Kaynak, A. Sabanoviç,”Robot Trajectory Control in Cartesian Space via Sliding Modes Proc. of IEEE 22th Int. Conf. on Industrial Electronics, Control and Instrumentation; IECON'96, Taipei v.1, pp. 189-194, Aug. 5-9, 1996.
37. Erbatur, K., O. Kaynak,“Fuzzy Adaptive Control of a Direct Drive Manipulator”, Proceedings of the Proc. Int. Conference on Recent Advances in Mechatronics, ICRAM'95, Istanbul, v.2, pp.714-721, August 14-16, 1995.
38. Erbatur, K., O. Kaynak, A. Sabanoviç, “A novel Variable Structure Control as Applied to the Control of a Direct Drive Manipulator,” Proceedings of the third European Control Conference, ECC95, Rome, v.3, Part 2, pp.2736-2741, Sept. 5-8, 1995.
39. Erbatur, K., O. Kaynak, I. Rudas “A Study of Fuzzy Control Schemes for Robotic Manipulators”, Proceedings of 1995 IEEE 21st International Conference on Industrial Electronics, Control, and Instrumentation, IECON 95, pp. 63-68, Orlando, USA, November, 1995.
40. Ertuğrul, M., K. Erbatur, O. Kaynak, A. Sabanovic, “A Control System for Automatic Guided Vehicles”, Proc. Conf. on Industrial Control Technologies, Istanbul, April, 1995.

41. Erbatur, K., O. Kaynak, A. Sabanovic, “An Experimental Evaluation of Chattering Free Sliding Mode Control as Applied to the Control of a Direct Drive Manipulator”, Proc. 1995 Int. Power Electronics Conference, IPEC'95, April 3-7,1995, Yokohama, Japan, v.1, pp.712-717, 1995..
42. Ertuğrul, M., A. Sabanovic, O. Kaynak, K. Erbatur, “Sliding Mode Control in Autopilot Design for Aero-planes”, Proc. 1. Conf. On Aeronautics and Advanced Technologies, İstanbul Technical University, İstanbul, March 1995..
43. Şahin, C., A. Sabanovic, R. Başbuğ, K. Erbatur, M. Ertuğrul, “CMAC Based Adaptive Learning in Motion Control”, Proc. 1. Conf. On Aeronautics and Advanced Technologies, İstanbul Technical University, İstanbul, March 1995.
44. Basbug, R., A. Sabanovic, M. Ertuğrul, K. Erbatur., “Fuzzy adaptive Sliding Mode Controller Design for Permanent Magnet DC Motors”, Proc. 1. Conf. On Aeronautics and Advanced Technologies, İstanbul Technical University, İstanbul, March 1995.
45. Erbatur, K., A. Sabanovic, O. Kaynak, R. Basbuğ ve M. Ertuğrul “Fuzzy Adaptive Sliding Mode Control for Robotic Manipulators”, Proc. 1. Conf. On Aeronautics and Advanced Technologies, İstanbul Technical University, İstanbul, March 1995.
46. Erbatur, K., R.B. Vinter, O. Kaynak, "Feedback Linearization Control for a 3 dof Flexible Joint Elbow Manipulator", Proc. IEEE Int. Conf. on Robotics and Automation, Vol 4, pp. 2979-2984, San Diego, 1994.

Conference Papers (National)

1. Erbatur, K., U. Seven, E. Taskiran, O. Koca, M.Yilmaz, M. Unel, G. Kiziltas, A. Sabanovic, A. Onat, "İnsansı robot platformu SURALP", Otomatik Kontrol Ulusal Toplantısı 2009, TOK 2009, Istanbul, Turkey, October 2009. (Best paper award)
2. Çallı, B., K. Erbatur, M. Ünel, “Bulanık Parametre Ayarlamalı Görüntü Destekli Kuvvet Kontrolü,” Otomatik Kontrol Ulusal Toplantısı, TOK 2008, Vol. 2, pp. 884-889, İstanbul, Türkiye, November 2008
3. Koca, Ö., U. Seven, E. Taşkıran, K. Erbatur, “Yay Şekilli Tek Ayak Destek SMN Yörüngeleri ile İnsansı Robot Yürüme Referansı Sentezi,” Otomatik Kontrol Ulusal Toplantısı, TOK 2008, Vol. 1, pp. 315-321, İstanbul, Türkiye, November 2008
4. Erbatur, K., U. Seven, E. Taşkiran, Ö. Koca, Güllü Kızıltaş, Mustafa Ünel, A. Sabanovic. A. Onat, “SURALP-L – İnsansı Robot Platformu Bacak Modülü,” Otomatik Kontrol Ulusal Toplantısı, TOK 2008, Vol. 1, pp. 330-335, İstanbul, Türkiye, November 2008
5. Seven, U., E. Taşkıran, Ö. Koca, K. Erbatur, “Ters Sarkaç Modeli ve Salınan Bacak Telafisi ile Oluşturulan Yürüyen Robot Referans Yörüngeleri” Otomatik Kontrol Ulusal Toplantısı, TOK 2008, Vol. 1, pp. 246-251, İstanbul, Türkiye, November 2008
6. Erbatur, K., O. Kurt, U. Seven “Doğal Sıfır Moment Noktası Yörüngeleri veYürüyen Robot Referansları,” Turkish Automation Conference, TOK 2007, Istanbul, Turkey, September 2007
7. Erbatur, K., B. Calli, “Bulanık Mantıklı Sınır Tabakası Kalınlığı Ayarlaması ile Kayan Kipli Robot Kontrolü,” Turkish Automation Conference, TOK 2007, Istanbul, Turkey, September 2007
8. Erbatur, K., O. Ayhan, “Yer Çekimi Telafi Teknikleri ile İki Bacaklı Robot Yürüyüş Kontrolü,” Turkish Automation Conference, TOK 2006, Ankara, Turkey, Nov 2006
9. Erbatur, K., A. Kawamura, “İki Bacaklı Yürüyen Robotlara Uygulanan Temas Modellemesi ve Dinamik Benzetim Yöntemi,” Turkish Automation Conference, TOK 2006, Ankara, Turkey, Nov 2006
10. Kurugöl, O., E. Arslantürk, G. Berkan, M. Unel, K. Erbatur “Doğrudan Sürüşlü Scara Roborun Görsel Geribeslemeli Gerçek Zamanlı Kontrolü,” Turkish Automation Conference, TOK 2006, Ankara, Turkey, Nov 2006
11. El Kahlout, Y., K. Erbatur, “Iki Bacakli Yuruyen Robotlarda Yuk Deisimi Icin Refleks Uyarlamasi,” Turkish Automation Conference, TOK 2005, Istanbul, Turkey, June 2005
12. Bebek, O., K. Erbatur and O. Kurt, “Iki Bacakli Yuruyen Robotlarda Bulanık Mantıklı Yuruyus Bicimi Uyarlamasi,” Turkish Automation Conference, TOK 2005, Istanbul, Turkey, June 2005
13. Yama, C., C. Enomoto, E. Tanaka, U. Zwiers, S. Tadokoro, F. Takemura, K. Erbatur, “A Proposition for Portable Measurament System from the Air”Robotics-Mechatronics Sysmposium, Nagoya-Japan, June 2004 (In Japanese)
14. Takemura, F., K. Erbatur, U. Zwiers, S. Tadokoro, C. Enomoto, C. Yama, “Radar aided data acquısıtıon by cable robot,” SICE System Integratıon Sysmposium, Tokyo-Japan, Dec 2003 (In Japanese)

15. Takemura, F., K. Erbatur, U. Zwiers, S. Tadokoro, M. Enomoto, C. Yama, “A study on development and data acquisition method of cable robot for data gathering from the air” Japanese Robot Society Symposium, Tokyo-Japan, Sept. 2003 (In Japanese)
16. Fumiaki, T., K. Erbatur, U. Zwiers, S. Tadokoro,H. Takayama, “Development of portable cable robot for data gathering from the air,” Robotics-Mechatronics Symposium, Japan, May 2003 (In Japanese)
17. Okazaki, A., K. Erbatur and A. Kawamura, "High-speed Walking with ZMP Sensor by Biped Robot MARI-1," Nippon Robotto Gakkai Gakujutsu Koenkai Yokoshu, vol. 20, pp 2-17, 2002 (In Japanese)
18. Erbatur, K., O. Kaynak, “Fuzzy Robotic Control”, Proceedings of the Neuro-Fuzzy Systems Conference, pp. 28-34, Ankara, METU 1995

Projects

1. Two Legged Humanoid Robot Design, Construction and Control, Sabanci University, sponsored by the Turkish Research Council with the grant no 106E040, Primary Investigator, 2006-2009
2. Small Hydro Power Plant Project, Automation System Consultant, Sabanci University, 2006-2009
3. SCADA and Motion Control System Test and Documentation, Project Manager, Steinbeis Technology Transfer Center Project for Festo, 2005
4. Microsystem Workstation Project, Human Machine Interface Design Consultant, Sabanci University, 2005-
5. Automatic Fabric Labeling System, Control System Design Consultant, Sabanci University, 2004-2005
6. Taguan- A Cable-Driven Robot for A Human Search at Major Disasters, Electrical and Software Design and Implementation, International Rescue System Institute, Kobe, Japan, 2003
7. Zero Moment Point Sensor Design and Application for Humanoids, Yokohama National University, Yokohama, Japan, 2001.
8. E-POSTCARD-A Windows based Program for Electronic Postcard Automation for Elderly People via the Use of Touch Panel and Scanner, Concept and Visual Basic Graphical User Interface Design, NIRO, Kobe, Japan, 2001.
9. Preliminary Design for Robotic Manipulators for Land-Mine Clearance Systems, EUREKA! ANGEL Project, TUBITAK-Marmara Research Centre (MRC), Turkey, 2000 (Project Manager of the Turkish Team)
10. Vehicle Mount Land-Mine Detection System Sensor-Data Fusion and Robotic Integration, TUBITAK-MRC., 2000 (Vehicle Mount Land-Mine Detection System Work Package Manager)
11. Tiger-Polishing-Shearing Textile Machine PLC Automation, TUBITAK Technology Development Center, 2000.
12. Automatic Guided Vehicle Electrical, Electronics and Software Design and Implementation, TUBITAK-MRC, 2000 (Project Manager)
13. Five Degrees of Freedom Hybrid Robot "MTS Robot H200" Electrical, Electronics and Software Design and Implementation, TUBITAK-MRC., 1998.
14. There Degrees of Freedom Cartesian Robot "Foaming Robot FR40" with Integrated Turn-Table, Electrical, Electronics and Software Design and Implementation, TUBITAK Technology Development Center, 1998.
15. Three Degrees of Freedom Cartesian Pick-and-Place Robot Electrical and Electronics Design and Implementation, TUBITAK Technology Development Center, 1997.
16. Sliding Mode and Fuzzy Adaptive Sliding Mode Controller Design and Implementation for Robotic Manipulators, TUBITAK-MRC, 1995.
17. Fuzzy Logic Controller Design and Implementation for SCARA Type Manipulators, TUBITAK-MRC, 1994.
18. Trajectory Generation and Inverse Kinematics Routine Generation for Six Degrees of Freedom Industrial Robots, TUBITAK-MRC, 1994.
19. PLC Applications on Adaptive Temperature Control Systems, EMIKON Control Co., Istanbul, Turkey 1991.

Teaching

ME 303 Control System Design (Sabanci University, 2008, 2009)

ME 308 Industrial Control (Sabanci University, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009)
ME 403 Introduction to Robotics (Sabanci University, 2002, 2003, 2004, 2005, 2006, 2007)
ME 406 Robotic System Applications (Sabanci University, 2003, 2004)
EE 520 Advanced Robotics (Sabanci University, 2003, 2004, 2005, 2006, 2007)
EE 521 Kinematics and Dynamics of Machines (Sabanci University, 2002)
EE 524 Digital Control Systems (Sabanci University, 2002, 2003, 2004, 2005, 2006)
EE 526 Industrial Automation (Sabanci University, 2002, 2003, 2004)
EE 528 Nonlinear Control (Sabanci University, 2008, 2009)

Thesis Supervision

1. Utku Seven, Ph.D. Thesis work on "Humanoid Robot Control and Full Body Dynamics," in continuation.
2. Bahadır Beyazay, Ph.D. Thesis work on "Remote Operated Submarine Vehicle Design and Control," in continuation.
3. Metin Yılmaz, MS. Thesis work on “Zero Moment Point Based Motion Planning for the Humanoid Waking Robot SURALP,” in continuation.
4. Iyad Hashlamon, “Experimental Evaluation of an Orientation Estimation Technique for Autonomuos Robotic Platforms,” MS. Thesis, Sabanci University, January 2010.
5. Evrim Taşkıran, " Walking Trajectory Generation and Control of the Humanoid Robot SURALP," MS. Thesis, Sabanci University, August 2009.
6. Özer Koca, " ZMP Based Reference Generation for a Bipedal Humanoid Robot," MS. Thesis, Sabanci University, August 2009.
7. Berk Çallı, “Visually Aided Force Control with Fuzzy Parameter Tuning," MS. Thesis, Sabanci University, August 2008
8. Elif Hocaoğlu, "Bionic Arm,". MS. Thesis, Sabanci University, January 2008
9. Utku Seven, "Linear Inverted Pendulum Model and Swing Leg Dynamics in Biped Robot Walking Trajectory Generation," MS. Thesis, Sabanci University, August 2007.
10. Şakir Kabadayı, “Design of a Six-Degrees-of-Freedom Haptic Device,” MS. Thesis, Sabanci University, August 2006.
11. Okan Kurt, “Biped Robot Reference Generation with Natural Zero Moment Point Trajectories,” MS. Thesis, Sabanci University, February 2006.
12. Ozan Ayhan, “Biped Locomotion Control via Hybrid Position Control and Gravity Compensation Modes,” MS. Thesis, Sabanci University, June 2004.
13. Yasser El-Kahlout, “Reflex Based Walking Pattern Adaptation for Biped Robots,” MS. Thesis, Sabanci University, June 2003.
14. Ozkan Bebek, “A Study On Automatic Gait Parameter Tuning for Biped Walking Robots,” MS. Thesis, Sabanci University, June 2003

Experience in Using

1. C, Fortran, Visual Basic, AcroBasic High Level Languages;
2. MC6800, MSP430 and MCS51 Families Assembly Languages;
3. Siemens S7-200, S7-300, Klöckner Moeller PS3, Mitsubishi FX 48, Mitsubishi Q-Series PLC’s;
4. Orcad, Q.Circuit, PCAD, E-Plan Circuit Design and I-DEAS, SolidWorks Solid Modeling Computer Aided Design Programs;
5. Simulink & Matlab, Simnon Simulation Packages.

Service in Professional Organizations

1. President - IEEE Turkey Branch Control Systems Society (Jan 2009-)

Conference Organizations

1. IFAC International Workshop on Adaptation and Learning in Control and Signal Processing, ALCOSP 2010 – Vice Chair
2. 26-28 August 2010, Antalya, TURKEY

3. Otomatik Kontrol Ulusal Toplantısı 2009, TOK 2009, September 2009, Istanbul, Turkey – Special Session Organizer
4. Otomatik Kontrol Ulusal Toplantısı 2007, TOK 2007, September 2007, Istanbul, Turkey – Member of the Organizin Committee
5. The 9th IEEE International Workshop on Advanced Motion Control, AMC'06, March 2006, Istanbul-Turkey – Finance Chair

Awards, Grants, Scholarships and Memberships

1. Best paper award, Otomatik Kontrol Ulusal Toplantısı 2009, TOK 2009, Istanbul, Turkey, October 2009.
2. Graduate Scholarship of Turkish Education Foundation (TEV)
3. Fellowship of British Council
4. Fellowship of Hyogo Prefecture, Japan
5. PI-TUBITAK Project 106E040 "Two Legged Humanoid Robot Design, Construction and Control"
6. Member IEEE