PERSONAL INFORMATION Asif Šabanović



Academy of Sciences and Arts of Bosnia and Herzegovina,
Bistrik 7, 71000 Sarajevo, Bosnia and Herzegovina
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asabanovic@anubih.ba, asif@sabanciuniv.edu, asabanovic@ius.edu.ba
Google scholar: https://scholar.google.com/citations?user=UlqHJQQAAAAJ&hl=en
ORCID https://orcid.org/0000-0002-2783-9354

Sex Male | Date of birth 1946 | Nationality Bosnia and Herzegovina

CURRENT ACADEMIC TITLES

Member of Academy of Sciences and Arts of Bosnia and Herzegovina
Emeritus professor, Sabanci University, Mechatronics Program, Istanbul, Turkey
Emeritus professor, University of Sarajevo, Faculty of EE, Sarajevo
Emeritus professor, International University of Sarajevo, FENS

AREAS OF SPECILIAZATION

Mechatronics, Robotics, Motion Control, Control Systems, Control Drives, Power Electronics

EDUCATION

1975 -1979 Ph.D. Electronics and Automatic Control , University of Sarajevo, Bosnia and Herzegovina
“Sinteza sistema upravljanja brzine asinhronog motora u klasi sistema sa promjenljivom strukturom sa osvrtom na upravljanje pozicije, momenta i snage”,
Doktorska disertacija, Elektrotehnički fakultet u Sarajevu, BiH, 1979
"Sliding Mode Approach to Design Induction Machine Velocity Control with Remarks on Position, Torque and Power Control",
Dr.Sc. Thesis, Faculty of EE, University of Sarajevo, Sarajevo 1979

1973 -1975 M.S. Electronics and Automatic Control , University of Sarajevo, Bosnia and Herzegovina
"Analiza mogućnosti regulacije brzine asinhronog motora sa kaveznim rotorom",
Magistarski, rad, Elektrotehnički fakultet u Sarajevu, BiH, 1975,
"Analysis of Induction Motor Velocity Control"
M.Sc. Thesis, Faculty of EE, University of Sarajevo, Sarajevo 1975

1965 -1970 B.S. Electronics and Automatic Control , University of Sarajevo, Bosnia and Herzegovina

ACADEMIC POSITIONS

1999-2015 SABANCI UNIVERSITY Faculty of Engineering and Natural Science, Mechatronics Program,
Full Professor

1985- 2011 UNIVERSITY OF SARAJEVO, Department of Electrical Engineering (1988-2011)
Full Professor, (1996-2011) – adjunct professor,

2008-2009 KEIO UNIVERSITY, Faculty of Science and Technology
Research Fellow in GCOE Program, on Sabbatical leave from Sabanci University

1995-1999 ISTANBUL TECHNICAL UNIVERSITY, Electrical Engineering Department, (Part time),
Full Professor

1994-1995 KOCAELI UNIVERSITY, Electrical Engineering Department, (Part time),
Full Professor

1992-1993 YAMAGUCHI UNIVERSITY Faculty of Engineering, **Full Professor**

1991-1992 KEIO UNIVERSITY, Faculty of Science and Technology (On leave from University of Sarajevo)
Hitachi Chair Professor

1987 UNIVERSITY OF TOKYO, Institute of Industrial Science
Research Fellow

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1983-1985 CALIFORNIA INSTITUTE OF TECHNOLOGY –CalTech, Department of EE (On leave from Energoinvest IRCA)
Visiting Professor

1974 USSR-ACADEMY OF SCIENCE, Institute of Control Sciences
Visiting Researcher

NON-ACADEMIC POSITIONS

1994-1999 Scientific Adviser in CAD/CAM Robotics Department, TUBITAK
1995-1999 Head of Engineering Division, B.H. Engineering and Consulting Co
1993-1994 Head of CAD/CAM Robotics Department, TUBITAK, MAM
1989-1991 Scientific Advisor, ENERGOINVEST – The Institute for Control and Computer Science
1975-1983 Chief engineer, ENERGOINVEST – The Institute for Control and Computer Science
1970-1985 Design engineer, ENERGOINVEST – The Institute for Control and Computer Science

RESEARCH EXPERIENCE

1999-2015 SABANCI UNIVERSITY**,** Establishment of the undergraduate and graduate education program and R&D activities in Mechatronics
1995-2000 ISTANBUL TECHNICAL UNIVERSITY, R&D in Control Systems, Robotics and Power Converters Control Systems
1993-2000 TUBITAK, Establishment of R&D activities in Power Electronics and Development of the 6 d.o.f. robotic system
1992-1993 YAMAGUCHI UNIVERSITY, Establishment of Industrial Control Systems Lab in cooperation with Prof. K. Wada.
1991-1992 KEIO UNIVERSITY, Research in Control of Robotic Systems and Power Converters in
2008-2009 Prof. Ohnishi Lab
1983-1985 CALIFORNIA INSTITUTE OF TECHNOLOGY, CalTech, Research in Power Electronics in Prof. Middlebrook and Prof Cuk Laboratory
1970-1991 ENERGOINVEST – The Institute for Control and Computer Science, Sarajevo

TEACHING EXPERIENCE

2015 - present INTERNATIONAL UNIVERSITY OF SARAJEVO (part time work)
1999 - 2018 SABANCI UNIVERSITY
2008 -2009 KEIO UNIVERSITY (visiting professor)
1995-1999 ISTANBUL TECHNICAL UNIVERSITY (part time work at graduate program)
1993-1994 KOCAELI UNIVERSITY (part time work)
1992-1993 YAMAGUCHI UNIVERSITY (Full Professor at ME Department)
1991-1992 KEIO UNIVERSITY (visiting professor)
1983-1985 CALIFORNIA INSTITUTE OF TECHNOLOGY (visiting professor)
1971-2011 UNIVERSITY OF SARAJEVO
(1971-1991 - part time employment, 1991-1993 full time employment, 1996-2011 adjunct professor)

THESIS ADVISOR

17 PhD and 35 MSc

AWARDS

2017 **ODTÜ Prof. Dr. Mustafa Parlar Vakfı 2017 year Group Technology Award**,
As a member of Sabancı University SUTAB Project (Tissue Ablation by Bubbles) team (Dr. **Ali Koşar**, Dr. **Asif Šabanović**, Dr. **Devrim Gözüaçık**, Dr. **Mustafa Ünel**, Dr. **Özlem Kutlu**, Dr. **Sinan Ekici**, Dr.

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Hüseyin Üvet and Dr. **Cenk Kığ**)

2016 The Elginkan Vakfı "**10. Türk Kültürü Araştırma ve Teknoloji Ödülleri**" - Teknoloji Dalında, as a member of the team developing the Sabancı University Tissue Ablating BublesSU Tabancası Project

1991 **Silver Award** of the University of Sarajevo for Professional Achievements

1985 **Outstanding Paper Award**, from IEEE Industrial Electronics Society for the paper "Sliding Mode Control of DC to DC converters"

1980 The State Award "**July the 27th**", for the contribution in the Power Electronics development, Sarajevo, (the highest award of the Republic Bosnia and Herzegovina)

MEMBERSHIP IN PROFESSIONAL SOCIETIES

IEEE - The Institute of Electrical and Electronics Engineers

PUBLICATION LIST

462 publications (6 books, 2 edited books, 16 chapters in the books, 438 articles and conference papers)

RESEARCH ACTIVITIES – PROJECTS AND REPORTS

Completed more than 50 research projects

PROFESSIONAL POSITIONS

2015 - present INTERNATIONAL UNIVERSITY OF SARAJEVO
Emeritus professor

1999-present SABANCI UNIVERSITY Faculty of Engineering and Natural Sciences
1999 – 2015 **Full professor,** Mechatronics Program
2015 - present **Emeritus Professor**,

1993-1998 TUBITAK - MRC, Turkey
1993-1995 **Head** of the CAD/CAM Robotics Department
1995-1998 **Scientific Advisor** to Institute of Informatics (Part time)

1995-1999 BH ENGINEERING
Head of Engineering Department.

1970-1991 ENERGOINVEST - IRCA
1990-1991 **Scientific Advisor** in the fields of **Power Electronics** and Control systems.
1986-1989 **Director** of Control Systems Division in IRCA.

1975-1983 **Founder and Head** of the Power Electronics and Motion Control Systems Department.
1978-1991 **Head** of the **ENERGOINVEST's Advisory Committee** for Power Electronics and Electrical Drives.

1985- 2011 UNIVERSITY OF SARAJEVO, Department of Electrical Engineering
1971-1991 - part time employment), (1991-1993 full time employment)
1988-2011 - **Full Professor**,
1996-2011 - **Adjunct professor**,
2020 - present - **Emeritus professor**

BOOKS, CHAPTERS IN THE BOOKS and PUBLICATIONS INCLUDED in WoS and SCOPUS

Books and Edited Books

2020 Tarik Uzunović and **Asif Šabanović**
***Motion Control of Functionally Related Systems*,**
CRC Press, taylor and Francis Group, 2020, ISBN 978-0-367-20880-6

2011 **Asif Šabanović** and Kouhei Ohnishi,
***Motion Control Systems*,**
IEEE Press and John Wiley & Sons (Asia) , Singapore, 2011, ISBN 978-0-470-82573-0

2010 Merve Acer and **Asif Šabanović**,
***Compliant mechanism design - A case study*,**
LAP Lambert Academic Publishing, Saarbrücken, Germany, 2010, ISBN 978-3838328591

2009 Nadira Šabanović - Behlilović and **Asif Šabanović**:
Statički pretvarači – Topologije i upravljenje
Static Converters - Topologies and Control
Universitet u Sarajevu, Sarajevo 2009, ISBN 978-9958-629-26-6

E. D. Kunt and **A. Šabanović**
***Microassembly System Design – A Case Study*,**
VMD Verlag Dr. Müller, Saarbrücken 2009, ISBN 978-3-639-16091-9

2004 **Šabanović, A.**, Fridman, L. and Spurgeon, S., (Editors),
Variable Structure Systems: from principles to implementation,
Control Series, Publisher IEE, UK, 2004, ISBN 0-86341-350-1 (edited book)

2003 **Šabanović, A.**, Hadžimejlić, N. and Behlilović , N,
Klizni režimi u upravljanju električnih mašina,
Sliding Modes in Electric Machines Control
Publisher University of Sarajevo, ISBN 9958-629-09-7

2002 **Šabanović, A.**, (Editor),
Advances in Variable Structure Systems, (Theory and Applications),
Proceedings of the 7th International Workshop on variable Stryuscture Systems
ETF Sarajevo, 2002, ISBN 9958-629-03-5, (edited book)

Chapters in the Books

2011 Asif Šabanović and N. Šabanović-Behlilović
Variable Structure Techniques
in *Handbook on Industrial Electronics* (Second Edition) Eds. Bogdan Wilamowski and J. David Irwin, CRP Press, 13-1-13-25, 2011, ISBN 978-1-4398-0289-2

Islam Shoukry Mohammed Khalil, **Asif Šabanović**,
Sensorless torque/force control
in *Advances in Motor Torque Contro*l., Edited by Mukhtar Ahmad,
ISBN 978-953-307-686-7, Publisher: InTech, Published: September 22, 2011,pp 49-68,
DOI: 10.5772/862

2007 Yannier S, Šabanović, A:
Control of piezoelectric actuators using analog sliding mode controller
Mechatronics Systems and Matrials, Eds. E. Macha,and R. Pawliczek, Opole University of Technology, Opole 2007

2006 **Šabanović, A.** Abidi K. and Onal C.,
Sliding Mode Control Application to Nano Positioners
Lecture Notes in Control and Information Sceinces Vol. 334, Eds. Edvards C. Collet EF and Fridman, L, pp 395-421, publ 2006. ISBAN 978-3-540-32800-1, **DOI**https://doi.org/10.1007/11612735

2004 Erbatur, K., Yildiz, Y. and **Šabanović, A.**,
Sliding Modes in Fuzzy and Neural Network Systems
in *Variable Structure Systems: from principles to implementation, Control Systems* Series, Eds. Šabanović, Fridman, Spurgeon, Publisher IEE, UK, 2004, ISBN 0-86341-350-1

Šabanović, A. and Jezernik, K.,
Sliding modes in motion control systems
in *Variable Structure Systems: from principles to implementation, Control Systems Series*, Eds. Šabanović, Fridman, Spurgeon, Publisher IEE, UK, 2004, ISBN 0-86341-350-1

2002 **Sliding Modes Applications in Power Electronics and Electrical Drives**
in *Variable Structure Systems: Towards 21st Century,* Lecture Notes in Control 274, pp 223-251, Eds. X. Yu and J.-X Xu, Springer-Verlag, ISBN 3-540-42965-4 (chapter in the book)

Šabanović, A., Šabanović, N and Goktug, G.,
VSS Control of Timing-Belt Servosystem
in *Advances in Variable Structure Systems*, Theory and Applications -Proceedings of the 7th International Workshop on Variable Structure Systems, Published by University of Sarajevo, 2002, pp.363-374, ISBN 9958-629-04-5, , COBISS/BH-ID 10845958

Gunay, M, **Šabanović, A.** and Šabanović, N,
Mimization of Instantaneous Total Harmonic Distortion of Current for Three Phase Switching Power Converters
in *Advances in Variable Structure Systems*, Theory and Applications -Proceedings of the 7th International Workshop on Variable Structure Systems, Published by University of Sarajevo, 2002, pp.275-282, ISBN 9958-629-04-5, , COBISS/BH-ID 10845958

2000 **Šabanović A.**, Jezernik K., Rodič, M.
Sliding Mode4 Control of Die Casting Machine
in Advances in Variable Structure Systems Analysis, Integration and Applications **the Proceedings of the 6th IEEE International Workshop on Variable Structure Systems. Gold Coast, Australia, Edited by Xinghuo Yu and Jian-Xin Xu7 – 9 December 2000, https://doi.org/10.1142/9789812792082_0048 , ISBN: 978-981-02-4464-4, ISBN: 978-981-4492-10-2, pp 509-518**
This is an extended version of paper published in
In the Proceedings of the 6th IEEE International Workshop on Variable Structure Systems, Gold Coast, Queensland, Australia, 7-9, December 2000

1996 Erbatur, K., Kaynak, O., **Šabanović, A.** and Rudas, I.,
Fuzzy adaptive sliding mode control of a direct drive robot
Robotic and Autonomous Systems 19 (1996), Elsevier Science B.V., pp. 215-227

1995 Kaynak, O. and **Šabanović, A.**,

Diffusion of New Technologies Through Appropriate Education and Training
in the book *Science and Technology: Russia and the World*, Vol. 2, Moscow 1995 (in Russian)
Version in English published in
NATO Advanced Research Workshop on Bariers to International Technology Transfer, London, England, Sept. 17-20, 1995, in the NATO Advanvced Science Institutes Series, Sub-Series 4, Vol. 11, pp. 99-107

1993 **Šabanović, A.**
Variable Structure Controllers in Motion Control Systems
Motion Control for Intelligent Automation (Selected Papers from IFAC Workshop, Perugia, Italy, 27-30 October 1992), uthors: A. De Carli, E. Masada , Pergamon Press, April 1993, eBook ISBN: 9781483297910

1990 Mile Ostojić and **Asif Šabanović**,
Robot Motion Control Based on Compensation of Manipulator Dynamics
in the book Recent Advances in Motion Control, Ed. G. Buja, H. Fujita, K. Ohnishi, The Nikkon Kogyo Shinbun Co., Tokyo, 1990, Japan, ISBN 4-526-02854-1 C3054, pp.57-65

Reverse Chronological list of publications included in the Web of Science (CC) and SCOPUS

2022 **Asif Šabanović**, Tarik Uzunović
Observer - Based Design of Motion Control Systems in SMC Framework,
This paper appears in: IEEE Access Vol 10; On page(s): 26603-26612, Print ISSN: 2169-3536 Online ISSN: 2169-3536, Digital Object Identifier: 10.1109/ACCESS.2022.3156643

Asif Šabanovic, Tarik Uzunovic*, Eray A. Baran, Minoru Yokoyama, and Tomoyuki Shimono
Application of Soft Actuation to Bilateral Control and Haptic Reproduction
International Journal of Control, Automation and Systems 20(3) (2022) 992-1001
DOI 10.1007/s12555-020-0660-x**,** ISSN:1598-6446 eISSN:2005-4092, http://www.springer.com/12555

2021 Tarik Uzunovic; Asif Sabanovic;
Universal Motion Controller
2021 IEEE 30th International Symposium on Industrial Electronics (ISIE) , 20-23 June 2021 , Kyoto, Japan, pp: 1-6; DOI: 10.1109/ISIE45552.2021.9576463 **Electronic ISBN:**978-1-7281-9023-5

Burak Oztoprak, Eray A. Baran and Asif Sabanovic
Bilateral teleoperation with continuously variable scaling and PD force control
Transactions of the Institute of Measurement and Control, Vol 43, No 5, pp:1048-1058, 2021/3
DOI: 10.1177/0142331219895922,

A Osmanović, T. Uzunović, **A. Šabanović**, J. Velagić
Disturbance-Observer-based Control of DFIG in Island Mode for Microgrid Applications, IEEE Access, Vol 9, pp 149153-149163, , Publication date 2021/11/13, ; DOI: 10.1109/ACCESS.2021.3124642

2020 Emre Ozsoy, Frede Blaabjerg, Pooya Davari, Jens Bo Holm-Nielsen, Dinesh Kumar, **Asif Šabanović**, P Sanjeevikumar
Special Issues: Harmonic mitigation techniques and grid robustness in power electronic-based power systems
IET Power Electronics, *13*(13), 2679-2681. https://doi.org/10.1049/iet-pel.2020.1016

Tarik Uzunovic; Asif Sabanovic; Minoru Yokoyama; Tomoyuki Shimono
Novel Algorithm for Position/Force Control of Multi-DOF Robotic Systems
2020 IEEE 16th International Workshop on Advanced Motion Control (AMC); 14-16 Sept. 2020, pp: 273-278
DOI: 10.1109/AMC44022.2020.9244337

2019 Emre Ozsoy, Sanjeevikumar Padmanaban, Frede Blaabjerg, Pierluigi Siano, Fiaz Ahmad, Rasool Akhtar & Asif Sabanovic
Digital Application of Second Order Generalized Integrator Based Grid Estimator Under Unbalanced and Distorted Voltage Conditions
Electric Power Components and Systems, 2019, vol 47, No 16-17, pp1464-1474, # 2019 Taylor & Francis Group,

LLC
ISSN: 1532-5008 print / 1532-5016 online, DOI: 10.1080/15325008.2019.1689447,

Eray A. Baran, Ozhan Ozen, Dogacan Bilgili and Asif Sabanovic
Unified Kinematics of Prismatically Actuated Parallel Delta Robots
Robotica Vol 37, No 9, September 2019, pp1513-1532, Cambridge University Press,
doi:10.1017/S0263574719000092, **Q2**
https://www.scimagojr.com/journalsearch.php?q=18078&tip=sid&clean=0

T. Uzunovic, A. Sabanovic, M. Yokoyama , T. Shimono,:
Novel Algorithm for Effective Position/Force Control,
IEEJ Journal of Industry Applications (English only), IEEJ Journal of Industry Applications (English only), Vol. 8 No. 6, pp 960-966; https://doi.org/10.1541/ieejjia.8.960
https://www.scimagojr.com/journalsearch.php?q=21100810612&tip=sid&clean=0

Dabbour, A.R., Sabanovic, A., Elitaş, M.
PID-Controlled Laparoscopic Appendectomy Device
International Symposium on Innovative and Interdisciplinary Applications of Advanced Technologies IAT 2018: Advanced Technologies, Systems, and Applications III pp 375-382
Lecture Notes in Networks and Systems, 59, pp. 375-382, 2019
https://link.springer.com/chapter/10.1007/978-3-030-02574-8_30
IAT 2018, LNNS 59, pp. 375–382, 2019. https://doi.org/10.1007/978-3-030-02574-8_30

2018 Tarik Uzunovic_, Edin Golubovic†, Zlatan Tucakovic_, Yasin Acikmese‡, Asif Sabanovic
Task-Based Control and Human Activity Recognition for Human-Robot Collaboration
IECON 2018 - 44th Annual Conference of the IEEE Industrial Electronics Society; Washington D.C., United States of America, Oct.21-23, 2018; ; pp: **5110-5115;** ISSN: **2577-1647,** DOI: **10.1109/IECON.2018.8591206,** INSPEC Accession Number: **18340592,** 978-1-5090-6683-4/18/$31.00 ©2018 IEEE

Eray A. Baran, Tarik Uzunovic and Asif Sabanovic
Performance improvement of bilateral control systems using derivative of force
Robotica: **Volume:** 36, **Issue:** 11, **Pages:** 1627-1640, **Publ. Date:** November/2018,
© Cambridge University Press 2018, **DOI**: https://doi.org/10.1017/S0263574718000607, **Q2**
https://www.scimagojr.com/journalsearch.php?q=18078&tip=sid&clean=0

Burak Oztoprak, Eray A. Baran and Asif Sabanovic
Bilateral Control With Continuously Variable Scaling
CEIT 2018, 6th International Conference on Control Engineering & Information Technology
25-27 October 2018, pp 1-6, **ISBN:**978-1-5386-7641-7, **DOI:** 10.1109/CEIT.2018.8751945; **INSPEC Accession Number:** 18797043

Batin Muslu, Burak Oztoprak, Eray A. Baran and Asif Sabanovic
Robust Motion Modification for Robot Manipulators in Constrained Environments
CEIT 2018, 6th International Conference on Control Engineering & Information Technology
25-27 October 2018, pp 1-6; **Electronic ISBN:**978-1-5386-7641-7 , **DOI:** 10.1109/CEIT.2018.8751921, , **INSPEC Accession Number:** 18797000

Tarik Uzunovic* and Asif Sabanovic
A Novel Approach to Motion Control Design for Functionally Related Systems
International Journal of Control, Automation and Systems Issue 16, 2018, pp:2014-2054
http://dx.doi.org/10.1007/s12555-017-0539-7 , ISSN:1598-6446 eISSN:2005-4092
http://www.springer.com/12555, **Q2**
https://www.scimagojr.com/journalsearch.php?q=25479&tip=sid&clean=0

Ozsoy, E., Soner, B., Ahmad, F., Rasool, A., Sabanovic, A., Gokasan, M., Bogosyan, S., Sanjeevikumar, P.
Disturbance Observer Based Power Control of DFIG Under Unbalanced Network Conditions
Electric Power Components and Systems 2018, Vol 46, Issue 13, pp:1448-1461;
DOI 10.1080/15325008.2018.1489434, Scopus EID2-s2.0-85059457671,

Tarik Uzunovic⁎, Emre Sariyildiz† and **Asif Šabanović‡**
A Discussion on Discrete Implementation of Disturbance-Observer-Based Control
IEEE 15th International Workshop on Advanced Motion Control March 9-11, 2018, Tokyo, Japan, pp 613-618, **ISSN:** 1943-6580¸ **DOI:** 10.1109/AMC.2019.8371164, **INSPEC Accession Number:** 17807817

Phuong, T.T., Ohishi, K., Mitsantisuk, C., Yokokura, Y., Ohnishi, K., Oboe, R., Sabanovic, A.
Disturbance observer and Kalman filter based motion control realization
IEEJ Journal of Industry Applications, 2018, Vol 7, Issue 1, pp:1-14,

DOI 10.1541/ieejjia.7.1 , Scopus EID 2-s2.0-85041962843;

Ahmet Kuzu[1], Eray A. Baran[2], Seta Bogosyan[3], Metin Gokasan[5], **Asif Šabanović**[4]
Improved Bilateral Teleoperation with Proactive Haptic Sensing and Transmission
Proceedings of the Institution of Mechanical Engineers, Part I: Journal of Systems and Control Engineering, vol. 232, 1: pp. 79-91, SAGE Publications, https://doi.org/10.1177/0959651817735777, **Q3**
https://www.scimagojr.com/journalsearch.php?q=20409&tip=sid&clean=0

Ahmad, Fiaz, Akhtar Rasool, Esref Emre Ozsoy, S. Rajasakar, **Asif Šabanović**, Meltem Elitaş,
Distribution system state estimation-a step toward smart grid
Renewable and Sustainable Energy Reviews Volume 81, Part 2, January 2018, Pages 2659-2671 **Pergamon, ISSN: 1364-0321,** https://doi.org/10.1016/j.rser.2017.06.071,**Q1**
https://www.scimagojr.com/journalsearch.php?q=27567&tip=sid&clean=0

2017 Akhtar Rasool, Fiaz Ahmad, **Asif Šabanović**,
Voltage Source Converter Control under Unbalanced Grid Voltage Conditions
ICAT 2017: 26th International Conference on Information, Communication and Automation Technologies, Sarajevo, Oct 26 - 28, 2017, **ISBN:**978-1-5386-3337-3, DOI 10.1109/ICAT.2017.8171643,
INSPEC Accession Number: 17417682

Zhakypov, Z., Tarik Uzunovic, Ahmet Ozcan Nergiz, Eray A. Baran, Edin Golubovic
Asif Šabanović
Modular and reconfigurable desktop microfactory for high precision manufacturing
The International Journal of Advanced Manufacturing Technology, *June 2017, Volume 90, Issue 9–12*, pp 3749–3759, https://doi.org/10.1007/s00170-016-9689-7

Akhtar Rasool, Esref Emre Ozsoy, Fiaz Ahmad, **Asif Šabanović**,
Sanjeevikumar Padmanaban
Disturbance-observer based control of voltage-source-converter under unbalanced voltage conditions
World Journal of Engineering, Volume: 14 Issue: 6, 2017, pp522-531, **ISSN: 1708-5284**
https://doi.org/10.1108/WJE-01-2017-0021

Emre Ozsoy, Sanjeevikumar Padmanaban , Lucian Mihet-Popa, Viliam Fedák
Fiaz Ahmad , Rasool Akhtar , **Asif Šabanović**
Control Strategy for Grid Connected Inverters Under Unbalanced Network Conditions - a DOB Based Decoupled Current Approach
Energies 2017, *10*(7), 1067; **https://doi.org/10.3390/en10071067**
Preprint: doi:10.20944/preprints201706.0088.v1,

Ahmad Fiaz, Akhtar Rasool, Emre Ozsoy, **Asif Šabanović**, and M. Elitas,
A Robust cascaded controller for DC-DC Boost and Cuk converters
World Journal of Engineering, Vol. 14 Issue: 5, pp.459-466, ISSN: 1708-5284,
https://doi.org/10.1108/WJE-10-2016-0118

Fiaz Ahmad, Muhammad Abdul Kabir Rashid, / Akhtar Rasool, / Eşref Emre Özsoy, **Asif Šabanović**, Meltem Elitaş
Performance Comparison of Static and Dynamic State Estimators for Electric Distribution Systems
International Journal of Emerging Electric Power Systems. Published Online: 2017-05-26, Vol 18, No 3, De Gruyter 2017, ISSN:1553-779X
DOI: https://doi.org/10.1515/ijeeps-2016-0299, Q3
https://www.scimagojr.com/journalsearch.php?q=4000151909&tip=sid&clean=0

Asif Šabanović
Challenges in Motion Control Systems
IEEJ Journal of Industry Applications (English only), Vol. 6 No. 2, pp. 107-116,
https://doi.org/10.1541/ieejjia.6.107, Q2
https://www.scimagojr.com/journalsearch.php?q=21100810612&tip=sid&clean=0

Fiaz Ahmad, Akhtar Rasool, Esref Emre Ozsoy, **Asif Šabanović**, Meltem Elitaş,
Successive-over-relaxation based recursive Bayesian approach for power system configuration identification,
COMPEL - The international journal for computation and mathematics in electrical and electronic engineering, Vol. 36 Issue: 4, Emerald Publishing Limited, ISSN: 0332-1649, (2017)
DOI: https://doi.org/10.1108/COMPEL-10-2016-0462,
https://www.scimagojr.com/journalsearch.php?q=28454&tip=sid&clean=0

Fiaz Ahmad, Kabir Muhammad Abdul Rashid, Akhtar Rasool, Esref Emre Ozsoy, **Asif Šabanović**, Meltem Elitaş, (2017)
An improved unscented Kalman filter based dynamic state estimation algorithm for electric distribution systems

COMPEL - The international journal for computation and mathematics in electrical and electronic engineering , Vol. 36 Issue: 4, Emerald Publishing Limited, ISSN: 0332-1649,
DOI: https://doi.org/10.1108/COMPEL-12-2016-0586, Q3
https://www.scimagojr.com/journalsearch.php?q=28454&tip=sid&clean=0

2016 Uzunovic, T., Golubovic, E., Šabanović, A:
Force Control of Piezoelectric Walker
42nd Annual Conference of the IEEE Industrial Electronics Society, IECON 2016, October 24-27, **2**016, Palazzo dei Congressi**,** Piazza Adua, 1 - Firenze (Florence) , Italy, **ISBN:**978-1-5090-3474-1 DOI**:** 10.1109/IECON.2016.7793513, INSPEC Accession Number**:** 16556858

Tarik Uzunovic, Eray A. Baran, Edin Golubovic, **Asif Šabanović**
A novel hybrid contouring control method for 3-DOF robotic manipulators
Mechatronics, Volume 40, December 2016, Pages 178–193, http://dx.doi.org/10.1016/j.mechatronics.2016.10.001

Fiaz Ahmad; Akhtar Rasool; Emre Ozsoy; **Asif Šabanović** M. Elitas
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Cognitive Telemanipulation in Task Redundant Multi-Body **System**
Firstreport for project 110M425, research period 15/07/12 - 15/01/13 submitted to TUBITAK, Sabanci University, Istanbul, 2013

2013 A. Šabanovicć, E. Baran, T. Uzunović, Z. Zhakyupov, E. Golubović, A.O. Nergiz, I
Mikrofabrika - Üretim, Montaj ve Konumlandırma
Final report for project 111M359 submitted to TUBITAK, Sabanci University, Istanbul, 2013
Submitted in English and Turkish languages

2012 A. Šabanovicć, E. Baran, T. Uzunović, Z. Zhakyupov, E. Golubović, A.O. Nergiz, I
Mikrofabrika - Üretim, Montaj ve Konumlandırma
Final report for project 111M359 submitted to TUBITAK, Istanbul, 2013, Submitted in English and Turkish languages

A. Šabanovicć, E. Baran, T. Uzunović, Z. Zhakyupov, E. Golubović, A.O. Nergiz, I
Mikrofabrika - Üretim, Montaj ve Konumlandırma
Second report for project 111M359 submitted to TUBITAK, report period 15/04/12-15/10/12
Istanbul, 2012, Submitted in English and Turkish languages

2011 A.Šabanović, K. Erbatur, H. Bayhan, K, Cakir, S. Tpocuoglu, A.T. Naskali, A. Kamadan, O. Koc
Bilgisayar Kontrollü Tc99m Radyofarmasötikleri Hazırlama Sistemi (RADIOPHARMATIC) Final report for SanTez project 00183.STZ.2007-2, Submited to Sanayi Bakanligi, Ankara, 2011

2010 A.Šabanović, K. Erbatur, H. Bayhan, K, Cakir, S. Tpocuoglu, A.T. Naskali, A. Kamadan, O. Koc
Bilgisayar Kontrollü Tc99m Radyofarmasötikleri Hazırlama Sistemi (RADIOPHARMATIC) Final report for SanTez project 00183.STZ.2007-2, Submited to Sanayi Bakanligi, Ankara, 2011

2009 M. Unel , A. Šabanović
Zamansal Gecikme Telafili İki Yönlü Kontrol Sistemleri (Bilateral Control Systems with Time Delay Compensation)
Final report on project no 106M533, Submitted to TUBITAK, September 2010

M. Unel , A. Šabanović
Zamansal Gecikme Telafili İki Yönlü Kontrol Sistemleri (Bilateral Control Systems with Time Delay Compensation)
Intermediate report on project no 106M533, report period 15/08/2008-15/02/1009, Submitted to TUBITAK, February 2009

2007 A.Šabanović, K. Yuksel, E. Erturk, N. Šabanović, K. Čakir, E.D. Kunt, A.T. Naskali
Açık Mimarili Mikro Montaj İş İstasyonu Open Structure Microassembly Workstation
Final report for project. Submitted to TUBITAK and Gebze Yuksek Teknoloji Enstituitu, , 2007

A. Šabanović. K. Jezernik, M. Elitas
Sliding Modes in Motion Control
Final report on project no 104E021, Submitted to TUBITAK, September 2007

A. Šabanović. K. Jezernik, M. Elitas
Sliding Modes in Motion Control
Fifth intermediate report on project no 104E021, Submitted to TUBITAK, September 2007

2006 A. Šabanović. K. Jezernik, M. Elitas
Sliding Modes in Motion Control
Forth intermediate report on project no 104E021, Submitted to TUBITAK, September 2006

A. Šabanović. K. Jezernik, M. Elitas
Sliding Modes in Motion Control
Third intermediatereport on project no 104E021, Submitted to TUBITAK, September 2006

N. Sabanovic A.Šabanović
Small Hydro Power Plant (SHPP)
Preliminary report for project. Submitted to TUBITAK , 2006

2005 A. Šabanović. K. Jezernik, M. Elitas

Sliding Modes in Motion Control
Second intermediate report on project no 104E021, Submitted to TUBITAK, September 2005

A. Šabanović. K. Jezernik, M. Elitas
Sliding Modes in Motion Control
First intermediate report on project no 104E021, Submitted to TUBITAK, September 2005

2002 Asif Sabanovic Nadira Sabanovic Kemalettin Erbatur Murat Gunay Ozkan Bebek Yasser I. Elkahoult Onur Sozbilir
TOOTHED-BELT SERVO SYSTEM CONTROL,
Third Report Prepared as a partial fulfillment under the Project No: ACF02-00094) , Submitted to FESTO, Germany, September 2002

Asif Sabanovic Murat Gunay Ozkan Bebek Yasser I. Elkahoult r
TOOTHED-BELT SERVO SYSTEM CONTROL,
Second Report Prepared as a partial fulfillment under the Project No: ACF02-00094) , Submitted to FESTO, Germany, July 2002

ACADEMIC WORK WITH STUDENTS

PhD Students - Theses

2017

Fiaz Ahmad
Event-Driven State Estimation in Electric Distribution Systems
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics program, 2017, **Thesis co-advisor**

Akhtar Rasool
Control of Three-Phase Converters as Source for Microgrid
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics program,2017

Ahmet Ozcan Nergiz
Design and Implementation of an Enhanced Framework for Complex Mechatronics Systems Software Development
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics program,2017

2015

Tarik Uzunovic
Motion Control Design for Functionaly Related Systems
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics program, 2015

2014

Abdurrahman Eray Baran
Assistive Control for Non-Contact Machining of Random Shaped Contours
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics program, 2014

Emre Eşref Ozsoy
Design and Application of a Robust Double Fed Induction Generator Controller for Variable Speed Wind Turbine
Istanbul Technic University, FEN bilimleri Enstitüsü, 2014, Thesis co-advisor

Edin Golubovic
Development of a Control Framework for Hybrid Renewable Energy System in Microgrid
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics program, 2014

2012

Emrah Deniz Kunt
Microfactory concept with bilevel modularity
Doktorska disertacija, Sabancı University, Faculty of Engineering and Natural Sciences, Mechatronics program, 2012

Merve Acer
Micro Motion stages with Flexure Hinges - Design and control,
Doktorska disertacija, Sabancı University, Faculty of Engineering and Natural Sciences, Mechatronics program, 2012

Ahmet Teoman Naskalı
Software Framework for High Precision Motion Control Applications
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics program, 2012

2011

Islam Shoukry Mohammed Khalil
An Energy Based Formalism for State Estimation and Motion Control
Doktorska disertacija, Sabancı University, Faculty of Engineering and Natural Sciences, Mechatronics

program, 2011

2009 Shahzad Khan
Micromanipulation – A Force Feedback Approach,
Doktorska disertacija, Sabancı University, Faculty of Engineering and Natural Sciences, Mechatronics program, 2009

2008 Selim Yannier
Analog Controller Based on Sliding Mode Control for Piezoelectric Actuators,
Doktorska disertacija, Sabancı University, Faculty of Engineering and Natural Sciences, Mechatronics program, 2008

2007 Nijaz Hadžimejlić
Klizni režimi u sistemima upravljanja kretanja sa posebnim osvrtom na primjenu u električnom automobilu
Doktorska disertacija, Elektrotehnički fakultet u Sarajevu, 2007

1991 Mile Ostojić,
Jedan rekurzivni algoritam za upravljanje kretanja nelinearnih sistema
Doktorska disertacija, Elektrotehnički fakultet u Sarajevu, 1991

1988 Faruk Bilalović
Organizovanje kliznih režima u sistemima automatskog upravljanja obrtnih električnih mašina
Doktorska disertacija, Elektrotehnički fakultet u Sarajevu, 1988

1987 Milan Vujović,
Algoritam upravljanja mašine jednosmjerne struje na bazi sistema sa promjenljivom strukturom
Doktorska disertacija, Elektrotehnički fakultet u Sarajevu, 1987

Master Students - Theses

2016 Shoaib Imtiyaz Shaikh
Compact Laboratory Setup For Electric Drives Education
Sabancı University, Faculty of Engineering and Natural Sciences, Mechatronics program, 2016

2013 Zhenishbek Zhakypov
Desktop Microfactory
Sabancı University, Faculty of Engineering and Natural Sciences, Mechatronics program, 2013

Tarik Edip Kurt
Programming Environment for Path Generation of Manipulator System of FESTO AG&Co.KG and Its Implementation
Sabancı University, Faculty of Engineering and Natural Sciences, Mechatronics program, 2013

2012 Sergio Kopex-Dorgia Guerra
Experimental Study and Redesign of a Vision Based Control System for Micro Assembly Workstation
Sabancı University, Faculty of Engineering and Natural Sciences, Mechatronics Program, (Exchange student from University of Barcelona, Spain), 2012

Victor Benit Santiago
Redesing, Reemplacement and implementation of a Vision System for a Micro Assembly Workstation
Sabancı University, Faculty of Engineering and Natural Sciences, Mechatronics Program, (Exchange student from University of Barcelona, Spain), 2012

2011 Ülker Gönenç

Design and Implementation of a Control Systems for Use of Gavanometric Scanners in Laser Micromachinning Applications
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2011

Edin Golubović
Design and Realization of Laser Micromachinning System
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2011

2010

Abrurrahman Eray Baran
Disturbance observer based bilateral control systems
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2010

Osman Koç
A field programmable gate array based motion control platform
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2010

2009

Islam Shoukry Mohammed Khalil
Sensorless Wave Based Control
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2009

2008

Baran Barış
Anti-Lock Breake System (ABS) via Sliding Mode Control
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2008

2007

Erhan Demirok,
Grid-connected variable speed generator applications with doubly-fed induction machine
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program 2007

Merve Acer
Design and modeling of a mechanism
Sabancı University, Faculty of Engineering and Natural Sciences, Mechatronics Program, 2007

Ahmet Özcan Nergiz
Bilaterally controlled micromanipulation by pushing in 1-D with nano-newton scale force feedback
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2007

Asanterabi Kighoma Malima
Motion planning and assembly for microassembly workstation
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2007

2006

Meltem Elitaş
Function Based Control for Motion Control Systems
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2006

Ahmet Altınışık
Bilateral Control Operational Enhancements
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2007

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Emrah Deniz Kunt
Design and Realization of Microassembly Workstation
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2007

Eray Doğan
Design and Implementation of Vision Systems for Microassembly Workstation
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2007, (Thesis Co-advisor)

2005

Nusrettin Güleç
Modelling and control of the coordinated motion of a group of autonomous mobile robots
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2005, (Thesis co-advisor)

Burak Yilmaz
A Sliding Mode Approach to Visual Motion Estimation
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2005

Sakir Kabadayi
Design of a Six Degrees of Freedom Haptic Devices
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2005, **Thesis co-advisor**

2004

Khalid Abidi,
Sliding Mode Control for High Precision Motion Control Systems
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2004

Kazim Çakır
In Wheel Motor Design for Electric Vehicles
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2004

Yildiray Yildiz
Neuro-Sliding Mode Controllers for Systems with Uncertainties
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2004

Bahadır Kılıç
Sensorless Control of Induction Machine
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2004

2003

Özkan Bebek
A Study on Automatic Gait Parameter Tuning For Biped Robot
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2003 (Thesis co-advisor)

2002

Selim Yannier
Realization of Reactive Control for Multipurpose Mobile Agents
MS, Mechatronics Program, March. 2001-July 2002, (Thesis Co-advisor)

Murat Günay
Minimization of Instantenous Total Harmonic Distortion of Current in Three-phase Switching Converters
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2002

Onur C. Sözbilir,
A Proposed Architecture for Remote Mechatronics Laboratory
Sabancı University, Faculty of Engineering and Natural Sciences,
Mechatronics Program, 2002

1987 Nijaz Hadžimejlić
Sinteza sistema upravljanja elektromehaničkog servomotora na bazi upravljanje asinhrone mašine,
Elektrotehnički fakultet u Sarajevu, 1987

1981 Milan Vujović
Sinteza sistema za regulaciju opterećenja obrtnih mašina
Elektrotehnički fakultet u Sarajevu, 1981

1979 Faruk Bilalović
Sinteza jednog tipa sistema sa promjenjivom strukturom za upravljanje kavezne asinhrone mašine,
Elektrotehnički fakultet u Sarajevu, 1979

Research Areas

Mechatronics and Robotics Systems

Involvement in ***robotic systems R&D*** activities started in 1986 and was oriented to:

- development of the industrial manipulators (Energoinvest);
- development of the high precision robotic manipulator control systems (Keio);
- development of the direct drive robotic manipulators (Yamaguchi U., University of Maribor)
- completion of MAMROB in Tubitak
- investigation of flexible joint and flexible arm systems
- Microparts assembly
- Bilateral Control
- Control of Redundant systems
- Control of systems with delay
- Microfactory

Theory of Control Systems

R&D activities in control systems are mostly oriented to:

- nonlinear control systems especially Variable Structure Systems with Sliding Modes.
- sliding mode application to switching converters
- mechantronics systems control
- bilateral systems
- robotics

Electrical Drives

The R&D work related to the Variable Structure Systems (VSS) and their application to the Power Electronics and Motion Control started in 1974 and it covers almost all aspects and types of electrical machines:

- dc drives
- ac drives (induction and synchronous)
- switching reluctance drives
- high performance servodrives for robotic application
- drives for electrical vehicle

Power Electronics

R&D work in Power Electronics field started in 1975 and covers more or less all interesting areas including:

Design of power converters:

- dc-dc converters of low power and medium power;
- industrial rectifiers for galvanization, electrolysis;
- inverters for HF heating systems
- converters for avionic application;
- design of back-to-back HVDC link

Electrical Drives:

- converters for dc machines;
- converters for ac (induction and synchronous machines);
- converters for switching reluctance machine;
- converters for servodrives in robotic applications;

Switching Converters Control:

- Variable Structure Systems based algorithms for dc-dc converters control;
- Variable Structure Systems based algorithms for three phase converters control (rectifiers and inverters);
- Variable Structure Systems based algorithms for three phase power filters and compensators;

SELECTED PROJECTS (2000-2021)

Project name 2021, 12 months, as additional supoort for

Robust Hybrid Position/Force Control of Robots Funded by Ministry of Civil Affairs of Bosnia and Herzegovina and realized at University if Sarajevo EE Department. The project supported extension of the works for EU project in the field of wearable robotics. The project aim is testing new algorithms for hybrid force/position control without need of the switching between the two tasks.

EU project preparation 45.000KM

Role – project advisor responsible for the selection of the algorithm.

Project name 2019, 18 months 67.000€ (used in BiH)

Educational Robot, Funded by EU, and realized in cooperation with research groups from Slovenia (leading partner) Italy, Spain, Turkey, and BiH (IUS Sarajevo). The project aim was to design modulare educational robot and educational material (lectures) that would allow usage in schools as an educational tool for basic, intermediate and advanced level.
Role – researched involved in specification of the system and structure of the educational material)

Project name 2019, 12 months 67.000 KM

Hybrid Generation of Electric Energy in Microgrids, Funded by Ministry for Education, Science and Youth of Canton Sarajevo, realized at University if Sarajevo EE Department. The aim of the project is to design new control algorithms for hybrid sources interconnected to the microgrid. Main work had been done related to the DFIG system interconnection and advanced usage of the available capabilities and dunsued degrees of freedom of the PE cvonverters to support additional functions in the controel of overall system.
Role: advisor responsible for control system selection. .

Project name 2018, 12 months, 21.000 KM

Wearable Robots for Augmentation, Assistance or Substitution of Human Motor Functions, funded by Ministry of Civil Affairs of Bosnia and Herzegovina as a support for the EU project application of the same name (application was not accepted). The leading partner was from Spain with collaboration from 5 other countries. The work done at University of Sarajevo, Faculty of EE was aimed to develop efficient and simple for application control algorithms that would allow smooth transient between force and postion control.
Role: advisor responsible for control algorithm development.

Project name 2013, 36 months, 950.000TL

Design and Development of a National Endoscopic Device Based on Hydrodynamic Cavitation for Medical Applications Funded by TUBITAK 1003 project No 113S092 and realized at Sabanci University in cooperation with Maltepe University, Yildiz Technical University. Project was aimed to develop methods and prototype of a device based on hydrodynamic cavitation for medical application. The results of the project were awarded in 2016. by The Elginkan Vakfı **"10. Türk Kültürü Araştırma ve Teknoloji Ödülleri"** - Teknoloji Dalında and in 2017 by the **ODTÜ Prof. Dr. Mustafa Parlar Vakfı** awards.
Role: project advisor for control systems development.

Project name 2011, 18 months 3.000.000 TL

MILRES: National Wind Energy Systems Project- Design, Development and Prototype Testing of Novel Turbine Systems Funded by TUBITAK 1007 project No 110G010 Realized by a consortium headed by Sabanci University. The aim of the project was to develop a 500 kW wind turbine system with DFIG generator.
Role: Researcher involved in the power electronics converter and control systems design.

Project name 2014, 24 months 240.000TL

Design of High Precision PZT Based Linear Stage, Funded by TUBITAK project 114M578, realized at Sabanci University. This project was intended to investigate possibility of PZT walker based high precision stage with frorce control. The 1 dof stage has 25 mm travel range, resolution of max ±2 encoder pulse but typical ±1 encoder pulse (with encoders used in our prototypes the resolution is ±5 nm or 61 nm. New algorithms for PZT bending actuators were developed and tested.
Role: Project principal investigator.

Project name 2012 24 months 165.000TL

Control of Multibody Systems with Network Delay, Funded by TUBITAK project 110M425 in the framework of Turkiye – Hungary scientific cooperation realized in cooperation of Sabanci University and Budapest University of Technology and Economics (BUTE). This project was intended to investigate concepts of control of multibody systems with network delay with application to bilateral control. The cooperation with BUTE allowed testing new algorithms.
Role: Principal investigator.

Project name 2011, 24 months 291.000TL

Microfactory, Funded by TUBITAK project 111M358 , realized at Sabanci University, Mechatronics program. In this project we addressed several issues related to design of laboratory microfactory workstations aimed to laser assisted micromachining, micro parts handling and visual inspection. The workstation consists of four stations (i) laser assisted manufacturing station, (ii) visual inspection station and (ii,iv) two manipulation stations interconnected by a rotational infestation transportation mechanism.
Role: Principal investigator

Project name 2009 24 months

Laser Supported Micromachining Workstation Funded by TUBITAK project 108M520 , realized at Sabanci University, Mechatronics program. In this project we addressed several issues related to design of laboratory workstations aimed to microparts handling and high laser assisted micromachining. The

288.000TL problems we addressed within this project are numerous and very diverse. They include mechatronics design, high precision motion control systems, integration of different sensors and energy sources, computer controlled complex systems and man-machine-interfaces.
Role Principal Investigator.

Project name **Bilateral Control Systems with Time Delay Compensation** Funded by TUBITAK project 106M533, realized as an NSF-TÜBİTAK project in cooperation with University of Alaska Faibanks. This is project dealing with the bilateral control in the presence of communication delay. The basic solution is extension of our previous work in SMC.
2008
24 months
78.000 USD
Role: Project co-PI

Project name **Computer Controlled Tc99m Pharmaceutics Preparation System,** Funded by Sanayı Bakanlığı SanTez Project SAC-07-0054-1, SAC-07-0054-2. Realized at Sabanci University in cooperation with MolImage, MONROL MolImage. Within the project a robotic system which prepares dozes of farmaceuticals is designed and a fully operational system was tested and verified..
2007
36 months
620.000TL
Role. Project Principal investigator.

Project name **Design, Construction and Control of a Biped Humanoid Walking Robot** Funded by TUBITAK research project no 106E040 and realized at Sabanci University , Mechatronics program. A 29 degrees-of-freedom full body human sized humanoid robot is designed and constructed. Bipedal walk on uneven terrain and visually assisted force control in environmental interaction are studied and appropriate control algorithms developed.
2006
36 months
361.000TL
Role: Researcher contributing to control system design.

Project name **Small Hydro plant,** Funded mby DTP project code EACF05-00337 realized in cooperation of Sabanci university and GYTE **.** The design and automation of a prototype of a small hydroplant based on new design of turbine and control system.
2006
24 months
168.000TL
Role responsible for control system design

Project name **Integrated Visual Servoing and Force Approach to Micro-Object Manipulation,** Sabancı University Internal Grant for project IACF06-00417. This project describes a novel approach to micro-object manipulation by developing robust and provably correct generic algorithms based on feedback provided from various imaging sensors (e.g. optical microscopes equipped with CCD cameras, AFM, SEM etc.
2006
24 months
75.000USD
Role: Researcher

Project name **Microsystems Assembly Workstation** Funded by DPT via GYTE nanotechnology center. Project AECF02-00268 realized by Sabanci University, Mechatronics program in cooperation with CMU-USA and GYTE. The main part of the project was develop advanced inspection and handling systems and methods for mini/micro products and components. The objective is to develop advanced technologies for handling, inspection and quality control of electromechanical, optoelectronical micro components. The system may be used for inspection and quality control of micro components, intelligent 3D manipulation/positioning system.
2004
24 months
790.000USD
Role: Principal investigator.

Project name **SMC in Motion Control Systems** Funded by TUBITAK and Slovenian research Fund and realized as cooperative project between Sabanci University and University of Maribor. Project code AECF04-00999. Project was related to realization of SMC based algorithms in electrical drives and motion control systems.
2004
36 months
70.000USD
(combined funding)
Role: principa investigator

Project name **Timing-belt servosystem,** Funded by FESTO Germany. Realized by Sabancu University Mechatronics program . Project code AECF02-00094. This project was intended to develop the vibration control algorithm to be applied to the toothed-belt linear servo systems powered by electrical servomotors. The system now in use by FESTO exhibits oscillations and very low tolerance to the load mass and belt elasticity changes.
2002
10 months,
28.000USD
Role: Principal investigator.

Project name **ISKI SCADA System,** Funded by ISKI and executed by Sabanci University as project AECF02-00128. Project aims to unify the structure of the SCADA systems for ISKI water treatment plants and pup stations and prepare preliminary system design and tender documentation for selected water treatment plants, pump stations and overall ISKI water supply system.
2000
24 months
136.000 USD
Role: Principal designer of the system

SELECTED PROJECTS

(1970-1999)

1997 - 1999 **Control system for new process of sea water desalination** project funded by **Kalsin Group**, Turkey Istanbul, Turkey.
Design of the high power dc source and control system for new type of sea water desalination plant.
Role: Advisor to the project team

1996 - 1999 **Automation and SCADA system for Water Treatment Plants** project funded by ISKI **(Istanbul Water Authority**), Istanbul, Turkey
The study of the PLC and SCADA system for water treatment plants and pumping stations has been a major aspect of this project as a part of the constancy work for Istanbul Water Authority.
Role: Head of the project team

1993 - 1997 **Sliding Mode Control of PWM Switching Converters** - project funded **by Toyo Denki Seizo KK. Tokyo**, Japan in cooperation with Keio University, Japan
This project started during our stay in Japan and is founded since. The aim is to develop original PWM Sliding Mode Control of Switching Converters. This goal has been attained and developed algorithm is tested and implemented in serial production. Now project is extended to sliding mode based observers development for sensorless AC drives.
Role: Advisor to the project team

1995-1996 **Electric Vehicle**" Project founded by **FAZ Electric**, Izmir, Turkey .
The conversion of a SKODA PICK-UP vehicle to an IM based electrically driven one was a target of this project. The conversion has been completed and test vehicle putted into experimental use. The project was completed in cooperation with University of Maribor, Slovenia.
Role: Advisor to the project team

1993-1996 **Industrial Robotic Systems**" project founded by **TUBITAK**, Turkey.
Six d.o.f. industrial robot MAM – 15 developed, manufactures and tested in TUBITAK-MAM CAD/CAM Robotics Department. The work included full mechanical design, the robot electronics controller and software design. This was one of the first robotics manipulators developed and manufactured in Turkey.
Role: Advisor to the project team as Head of the CAD/CAM Robotics Department

1993-1996 **VSS in AGV Control Systems**, project founded by **TUBITAK** ,Turkey
Different structures for the AGV control have been studied. The experimental system was developed and tested. Good autonomy and path tracking characteristics have been obtained.
Role: Advisor to the project team

1993 **Die Casting Machine Control** - project funded by **Ube Industries, Ube, Japan**
The goal was development of the of the control system for Die Casting Machine. Because of the compressed air drive highly nonlinear characteristics and wide parameter change is complicating the task. Computer simulation has proven the stability and the basic characteristics of the developed system.
Role: Advisor to the research team

1985-1987 **CAD in Power Electronics**
The project had been established to develop a PC based computer software for the Analysis and Design of Switching Power Converter. The special attention has been given to the design capabilities of the program and the merging real time measurement with computational predictions in order to facilitate fast prototyping. Project was financially supported from the USA-YU Foundation.
Participants: **California Institute of Technology (USA), and Energoinvest - IRCA**
Role: Head of the Project from the Bosnian side

1975-1979 **VSS in Electrical Drives Control**
Development of the system for control of mechanical coordinates and torque of electric machines. This was a first world-wide project of the application of VSS theory to induction machine control. It resulted in 40kW industrial prototype and scientific results that have been patented in many countries. This project

has triggered research in the Sliding Mode application to power converters and electrical drives.
This project was ENERGOINVEST's beginning in the field of Power Electronics and Motor Drives.
Participants: **Institute for Control Problems - Academy of Sciences U.S.S.R. and Energoinvest - IRCA**
Role: Head of Project Development team from Energoinvest side. Prof. Vadim. I. Utkin was the Head of the team from the USSR side.

1970 -1974 **Process control system SUPS**
Development of a modular process control systems based on the theory of sliding modes control. The system has 58 different modules for: measurement (pressure, level, temperature, flow etc.), controllers, servo motors etc. intended for large scale process control systems.
Participants: **Institute for Control Problems - Academy of Sciences U.S.S.R. and Energoinvest - IRCA**
Role: Design Engineer

1986-1991 **Sliding Mode Control of Power Converters and Electric Machines**. Research funded by Republican Scientific Foundation and Industry Consortium, Sarajevo.
This project has sought the unified approach to switching converters and electrical machines control systems in the framework of VSS theory.
Role: Head of the project team

1985-1991 **Variable Structure Systems Application in The Control of Robotics Manipulators** Research funded by Republican Scientific Foundation and Industry Consortium, Sarajevo.
Development of the 6 d.o.f. robotic manipulator including mechanical subsystem, the drives and the robot controller. System has been developed and tested with industrial testing in the forging factory.
Role: Advisor to the project team

1985-1991 **Industrial Robotics** - development of the family of industrial robots. Research funded by Republican Scientific Foundation and Industry Consortium, Sarajevo.
Development of the robotic system suitable for application in forging industry and in HF metal heating systems.
Role: Advisor the project team

1986-1990 **Topologies, Analysis, Design and Control of PWM Switching Converters** Research funded by Republican Scientific Foundation and Industry Consortium, Sarajevo.
Under this project an unified theoretical background for the switching converters analysis has been sought. The result has been a new modeling techniques of three phase switching converters which is very useful in the control system design.
Role: Advisor to the project team

1986-1990 **HVDC Back to Back Interconnection - A Control System Design**. Research funded by Republican Scientific Foundation and Industry Consortium, Sarajevo.
The analysis and simulation of the HVDC link and the control system design has been done under this project. This was a part of a larger project studying the possibility to connect Yugoslav system to the Eastern Europe electric system through HVDC connection.
Role: Head of the project team

1985-1987 **CAD in Power Electronics**, development of the program for the control system design in Power Electronics. Research funded by Republican Scientific Foundation and Energoinvest, Sarajevo.
Development of the software tools that will help design and analysis of the power electronic systems. The package comprised of automatic equation generator for the electronic systems with switching elements, based on Bond graph techniques; the dynamical simulation of the large systems with discontinuous change of the parameters; the graphing tools etc.
Role: Head of the project team

1981-1983 **Control of the Electric Power Consumption in Industrial Systems**. Research funded by Republican Scientific Foundation and Industry Consortium, Sarajevo.

Large project oriented towards economical utilization of the electrical energy in industrial systems. The methods of power consumption reduction in electric drives, active filters and reactive power compensation where developed.
Role: Head of the project team

1981-1983 **A study of New Methods For Reactive Power Compensation**. Research funded by Republican Scientific Foundation and Energoinvest, Sarajevo.
System of reactive power compensation based on special auto-transformers with pre-magnetization of the core have been introduced.
Role: Advisor to the project team

1980-1983 **Electromechanical Servo motor for Process Control Applications**. An experimental research funded by Energoinvest and Republican Scientific Foundation Sarajevo.
Development of the set of servo-motors for process control application with linear and angular movement based on the controlled induction machine drive. The production of these motors has been organized in Energoinvest.
Role: Head of the project team

1978-1979 **An Induction Machine Application For the Tram-Car-Traction**. An experimental research funded by Energoinvest and Republican Scientific Foundation Sarajevo.
Development and field testing of the tram-car drive based on induction machine. The experiments where successfully completed for a car powered by four 32kW motors supplied from 750DCV supply.
Role: Head of the project team

1977 **Open-Pit-Mine Transport System Automation"** a study under contract with Energoinvest - TTU, Tuzla and with support of Republican Scientific Foundation RZNIR, Sarajevo.
The development of the large open pit coal mine control system.
Role: member of the project team

1974-1976 **Squirrel cage induction motor speed control**.
Study under contract with Republican Scientific Foundation Sarajevo.
Project under which the prototypes for industrial production of the IM control system have been developed.
Role: Head of the project team

Patents

1997 **D.B. Izosimov, A. Šabanovic:**
Patent "Control System of Synchronous Machine"
Application No. USA No 903.208; Great Britain No 18347/78; Switzerland No 869/78-4; Sweden No 780 4591-1; W. Germany No P28.19.-789.9; France No 13399;
"Variable structure control system for the control of induction motor" (Patent act) 1977. The patent act describes control algorithms for the control of squirrel cage induction motor, its implementation and description of operation of each block in the control structure. SFR Yugoslavia; Great Britain; Switzerland; USA; Germany; France; Italy

Selected development works

1992-1993 **Control of Die Casting Machine Yamaguchi University, Ube**.
Simulation of the control algorithm for Die Casting Machines.

1992-1993 **Three d.o.f. Direct Drive Robotic Manipulator**, **Yamaguchi University, Ube**,
Development of the laboratory prototype of 3 d.o.f. robot and control system.

1992-1993 **Automatic Guided Vehicle**, **Yamaguchi University, Ube**.
Development of the AFV control system for industrial application.

1991-1992 **Sliding Modes Application in Motion Control Systems**, **Keio University**, Yokohama.
Testing of different types of motion controllers for DD robotic manipulators.

1989-1991 **Microprocessor Controller for Industrial Robots**, Energoinvest - IRCA, Sarajevo .
Development of a robotic controller for 6 d.o.f. robot.

1989-1991 **AC Servos for Robotics Applications**, Energoinvest - IRCA, Sarajevo .
The PM synchronous machines actuators for robotic applications.

1991 **Supply and Control System for Electronic Beam Welding** Energoinvest - IRCA, Sarajevo.
The Controlled high voltage power supply and microprocessor control system of an industrial installation for electronic beam welding has been developed.

1985-1991 **Medium and High Frequency Heating Systems**,
Development of converters and control systems for industrial melting and heating installations has been developed.

1985-1987 **Electromagnetic Voltage Stabilizers**, Energoinvest - IRCA, Sarajevo.
Development of a family of the AC voltage stabilizers for industrial applications.

1982-1984 **Electromechanical Actuators for Fly By Wire Systems,** Energoinvest - IRCA, Sarajevo.
Development of the electromagnetic servo-actuator for application in fly-by-wire system. System has been designed and tested in flight conditions.

1987-1991 **AC to DC Power Supplies for Avionics Applications**, Energoinvest - IRCA, Sarajevo.
Development of power supplies for different electronic system at military airplanes.

1982-1987 **Family of Electromechanical Actuators for Avionics Applications** Energoinvest - IRCA, Sarajevo.
Development of a set of electromechanical actuators powered by induction motor controllable drive for process control system application.

1984-1985 **400Hz Inverter for Avionic Applications**, Energoinvest - IRCA, Sarajevo.
Development of the DC to Ac converter for military plane application.

1981-1983 **Industrial Power Supplies**, Energoinvest - IRCA, Sarajevo.
Development of a family of DC to DC and AC to DC converters for industrial applications.

1980-1982 **Industrial UPS Systems**, Energoinvest - IRCA, Sarajevo.
Development of a family of UPS for industrial applications.

1977-1979 **System for Control of Speed and Torque of Wound Rotor Asynchronous Machine**
Energoinvest - IRCA, Sarajevo.
Development of a family of sub synchronous cascade systems has been developed for industrial applications.

1976-1979 **DC Machines Control Systems,** Energoinvest - IRCA, Sarajevo.
Development of a family of controlled bridge rectifiers for power range 1-500KW has been developed to supply controlled DC drives. The structure of the controller is a cascade one.

1974-1978 **VSS for Induction Machines Control** Energoinvest - IRCA, Sarajevo. Development of the system for control of AC machines. The system Consists of the family of McMurray type inverters for power range 10-150KW, the control unit and control panel..

1971-1973 **Integrator and memory unit MIA-100**, Energoinvest - IRCA, Sarajevo.
Development of an analog circuitry that could provide given mathematical operations.

1971-1973 **Universal mathematical unit UMB 100** (multiplier, divider, square root) Energoinvest - IRCA Sarajevo.
Development of an analog circuitry that could provide listed mathematical operations.

1971-1973 **Square root calculator KOR-100**, Energoinvest - IRCA Sarajevo.
Development of an analog circuitry that could provide listed mathematical operations.

1971-1973 **Algebraic unit ALG-100**, Energoinvest - IRCA, Sarajevo.
Development of an analog circuitry that could provide algebraic operations.

SELECTED SEMINARS

2008-9 **Advances in Motion Contro** ciklus od 12 predavanja za saradnike na projektu Global Centers of Excellences, Keio University, Japan, Department of Systems Design, Japan

2008 **TUTORIAL – SMC and its Applications,** 17th IFAC World Congress, Seoul, Korea, July 06 2008, Korea

2007 **Challenges in Motion Contol** 9th WSEAS International Conference on AUTOMATIC CONTROL, MODELLING and SIMULATION (ACMOS '07), Istanbul, May 27-28, 2007, Turska

2006 **Vision Assisted Microassembly,** TUBITAK, May 24, 2006, Turska

2004 **Robust Motion Control – SMC Point of View** the 11th International Power Electronics and Motion Control Conference, EPE_PEMC 2004, Riga, September 2-5, 2004, Litvanija

AMC 2004 the 8th IEEE International Workshop on Advanced Motion Control AMC'04- Kawasaki, March

25 - 28, 2004, Japan

2003 TUTORİAL **Sliding Mode Control Systems and its Applications,** (Šabanović, A. i Utkin,V.I) 29th Annual Conference of the IEEE Industrial Electronics Society, IECON 2003, Roanoke, November 02-09, 2003, USA

SMC in Power Electronics University Technology Malaysia, Kuala Lumpur, Maj 2003, Malezija

SMC in Mechatronics Systems, na Universitetu u Mariboru, FERI, Septembar 2003, Slovenija

2000 **Mechatronics – A Way to Go**, ETF Sarajevo, Mart, 2000, BiH

1999 TUTORIJAL **Sliding Mode in Power Electronics and Motor Drives,** (Šabanović, A. i Utkin,V.I) ISIE'99 International Symposium on Industrial Electronics, Bled, 1999, Slovenia

1995 **Sliding Mode Control Systems,** ciklus predavanja od 5 u TUBITAK-Marmara Research Center za saradnike u CAD/CAM Robotics Department, 1995, Turska

1994 **Controll of Switching Converters** seminar na KyushuUniversity, EE Department, June 1993

Sliding modes application in Power electronics and Motion Control IECON'94, Sept 4, 1994, Bologna, Italy

1993 **How to apply SMC,** semnar u Ube Industries, Ube, Maj 1993, Japan

1992 **Sliding Mode Control Systems** ciklus od 10 predavanja u okviru programa "HitachiChairship" za polaznike postdiplomskog studija na Faculy of Sciences, Japan.

Advanced Motion control Predavanje u Hitachi Corporate Research Center, Japan

Sliding Modes in Power Converters Control, seminar (3 predavanja) za inzenjere u Toyo Denki Seizo, KK, Tokyo, Japan

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CITIZENSHIP

Organization of Conferences

2012	**General Co-Chair** of the AMC 2012the 12th **IEEE** International Workshop on Advanced Motion Control (AMC 2012). Sarajevo, Bosna i Hercegovina, March 25-27, 2012.
2006	**General Chair** of the AMC 2006 9th **IEEE** International Workshop on Advanced Motion Control (AMC). 27-29 March 2006, Istanbul, Turkey.
2002	**Chairman** of the First IEEE International Workshop on Variable Structure Systems and their Applications VSS'2002, Sarajevo, Bosna i Hercegovina, March 27,28 2002.
1992	**Organizer and Chairperson** of the Special Session "VSS & Its Applications I_III" IMACS/SICE International Symposium on Robotics, Mechatronics and Manufacturing, Kobe, Japan, September 16-20, 1992.
	Organizer and Chairperson of the Special Session "Motion Control and Actuators" 1992 IEEE/RJS International Conference on Intelligent Robot Systems, Raleigh, USA, July 7-10, 1992.
1990	**Chairman** of the First IEEE International Workshop on Variable Structure Systems and their Applications VSS'90, Sarajevo, Bosna i Hercegovina, March 27,28 1990.
1981	**Member of the Organizing Committee** of the IV Jugoslovenskog savjetovanja Energetska Elektronika, Sarajevo, Bosna i Hercegovina, June, 1981.

Membership in Organizing Committees

2015	**Computer and Control Systems Technical Track Chair,** IEEE International Conference on Mechatronics, Vicenca, Italy, February 27-28, March 1, 2013
	Computer and Control Systems Technical Track Chair, IEEE International Conference on Mechatronics, Nagoya, Japan, March 6-8, 2015
	Member of the Organizing Committee, 18th International Conference on Electrical Drives and Power Electronics, The High Tatras, Slovakia, 21-23 September 2015
2014	**Co-Chair,** 16th International Power Electronics and Motion Control Conference and Exposition, September 21-24, Antalya, Turkey
2013	**Member of the International Steering Committee, ICELIE 2013, Vienna, November 10-13, 2013**
2012	**Member of the Organizing Committee :** the ICIT 2012 International Conference on Information Technology. Madrid, Spain March 28-29, 2012
	Member of the Organizing Committee : the ICELIE 2012 6th IEEE International Conference on E-Learning in Industrial Electronics (ICELIE 2012) Montreal Canada from 25 to 28 October
	Member of the Organizing Committee: of the VSS 2012 The 12th International Workshop on Variable Structure Systems VSS 2012| Indian Institute of Technology Bombay, India January 12-14, 2012
2011	**Member of the Organizing Committee :** ICM 2011 IEEE International Conference on Mechatronics, ICM 2011, April 13-15, 2011 in Istanbul, Turkey.
	Member of the Organizing Committee : the HSI 2011 4th International Conference on Human System Interaction (HSI 2011), Keiio University, May 19-21, Yokohama, Japan
	Member of the Organizing Committee : theVSS 2010 - The 11th International Workshop on Variable Structure Systems, Mexico City from June 26th till June 28th, 2010.
	Member of the Organizing Committee : the ICELIE 2011 The 5th IEEE International Conference on E-Learning in Industrial Electronics (ICELIE 2011) Crown Conference Centre, Melbourne Australia from 7-10 November 2011.
	Member of the Organizing Committee : the IECON 2011 37th Annual Conference of the IEEE Industrial Electronics Society, Crown Conference Centre, Melbourne Australia from 7-10 November 2011.
	Member of the Organizing Committee : the EDPE **2011**. 5th joint Slovak-Croatian conference. Electrical Drives and Power Electronics, High Tatras, Slovakia, on 28 - 30 September 2011
	Member of the Organizing Committee : the 38th Annual Conference of the IEEE Industrial Electronics Society (IECON-2012). Monteral, Canada, 25-28 October 2012.

2010 **Member of the Organizing Committee** : the 36th Annual Conference of the IEEE Industrial Electronics Society (IECON-2010). Glendale, AZ, USA, 7-10 November 2010.

Member of the Organizing Committee : the ICIT 2010 7th International Conference on. Industrial Tribology. First Announcement. December 2-4, 2010, Viña del Mar, Chile

Member of the Organizing Committee : the AMC 2010 The 11th IEEE International Workshop on Advanced Motion Control, Nagaoka University of Technology, Nagaoka-city, Niigata, Japan, on March 21–24, 2010.

Member of the Organizing Committee : the EPE-PEMC 2010 13th International Power Electronics and Motion Control Conference EPE-PEMC 2010, Poznan, 1-3 September, Poland

Member of the Organizing Committee : the TOK 2010 Otomatik Kontrol Ulusal Toplantısı, Sep 21, 2010 - Sep 23, 2010, GYTE, Kocaeli, Turkey

2009 **Member of the Organizing Committee :** the ICM 2009 5th IEEE International Conference on Mechatronics, Málaga, Spain, on April 14-17, 2009

Member of the Organizing Committee : the ICIT 2009 IEEE International Conference on Industrial Technology (ICIT'09). Monash University – Gippsland, Australia, February 10-13, 2009

Member of the Organizing Committee : the EDPE 2009 the 4th joint Slovak-Croatian conference Electrical Drives and Power Electronics,.Dubrovnik, October 12-14, 2009, Croatia

Member of the Organizing Committee : the 35th Annual Conference of the IEEE Industrial Electronics Society (IECON-2009). Porto, Portugal, 3-6 November 2009

Member of the Organizing Committee : the **TOK 2009**, Otomatik Kontrol Ulusal Toplantısı, 13-16 Ekim 2009, Yıldız Teknik Üniversitesi, İstanbul i

2008 **Member of the Organizing Committee :** the AMC 2008 The 10th IEEE International Workshop on Advanced Motion Control (AMC 2008). Trento, Italy, March 26-28, 2008.

Member of the Organizing Committee : the EPE-PEMC 2008 14th International Power Electronics and Motion Control Conference EPE-PEMC 2008, Ohrid, 6-8 September, Macedonia

Member of the Organizing Committee : the TOK 2008 Otomatik Kontrol Ulusal Toplantısı 13-15 Kasım 2008 , İTÜ, Istanbul, Turkey

2007 **Member of the Organizing Committee :** the TOK 2007 Otomatik Kontrol Ulusal Toplantısı 5 - 7 September **2007,** Sabancı Üniversitesi, Istanbul

Member of the Organizing Committee : ISIE 2007. 2007 IEEE International Symposium on Industrial Electronics. June 4-7,2007. Centro Cultural and Centro Social Caixanova - Vigo, Spain

2006 **Member of the Organizing Committee :** the ICM 2006 4th IEEE International Conference on Mechatronics July 3-5, 2006, Budapest, Hungary

Member of the Organizing Committee : the EPE-PEMC 2006 12th International Power Electronics and Motion Control Conference EPE-PEMC 2006 Portorož, Slovenia, August 30 - September 1, 2006

2005 **Member of the Organizing Committee :** the EDPE 2005 the 4th joint Slovak-Croatian conference International Conference on Electric Drives and Power Electronics 26 – 28 September 2005, Dubrovnik, Croatia

2004 **Member of the Organizing Committee : the AMC 2004 the 8th IEEE Internatioal Workshop on Advanced Motion Control AMC'04- Kawasaki , Japan March 25 - 28, 2004**

Member of the Organizing Committee : the EPE-PEMC 2004 11th International Power Electronics and Motion Control Conference 2004, Riga, Latvia.

2003 **Member of the Organizing Committee :** the ICIT 2003 ICIT'03 International Conference on Industrial Technology ICIT'03 Maribor, Slovenia December 10 - 12, 2003

2002 **Member of the Organizing Committee:** the AMC 2002 7th International Workshop on Advanced Motion Control AMC'02 Maribor, Slovenia July 3 - 5 , 2002

2001 **Member of the Organizing Committee:** the IECON 2001, the 27th Annual Conference of the IEEE Industrial Electronics Society, Hyatt Regency Tech Center, Denver, Colorado, USA Nov 29 (Thu) to Dec 2 (Sun) 2001

2000 **Member of the Organizing Committee:** the IECON 2000 26th Annual Conference of the IEEE Industrial Electronics Society : 2000 IEEE International Conference on Industrial Electronics, Control and Instrumentation : 21st Century technologies and industrial opportunities : 22-28 October, 2000, Nagoya, Aichi, Japan

1999 **Member of the Organizing Committee:** the ISIE'99 International Symposium on Industrial Electronics, Bled,

Slovenia 1999

1998 **Member of the Organizing Committee:** the EDPE'98 Intl. Conf. On Electric Drives and Power Electronics, Dubrovnik, Croatia, October 14-17, 1998

1996 **Member of the Organizing Committee:** the IEEE Workshop on Sliding Modes and Lyapunov Design, Tokyo, Japan, December 2-4, 1996

1994 **Member of the Organizing Committee:** the IEEE Workshop on Sliding Modes and Lyapunov Design, Benevento, Italy, December 2-4, 1994

1992 **Member of the Organizing Committee:** the IEEE International Workshop on Variable Structure and Lyapunov Control of Uncertain Dynamical Systems, Sheffield, UK., September 7-9, 1992.

1988 **Member of the Organizing Committee**: the Conferences "Power Electronics" held in Sarajevo (1981), Ljubljana (1984), Subotica (1986), Belgrade (1988)

Membership in Editorial Boards

2008-2015 **Member of the Editorial Board** of The International Journal of Mechatronics (IJMMS), ISSN (Online) 1753-1047, ISSN (Print) 1753-1039, Inderscience Publisher, Canada

1994 - 2010 **Member of the Publishing Concil,** Automatika – Journal of Control, measurement, electronics, computing and communications, KoREMA, Zagreb, ISSN (Online) 1843-3380, ISSN (Print) 0005-1444

Membership in Technical Committees

2008 - **Member IEEE IES,** Technical Committee on Education in Engineering and Industrial Technologies

2008 - **Member IEEE IES,** Technical Committee on Sensors and Actautors

2006 - **Member TIEEE CSS**, the Technical Committee on Variable Structure and Sliding Mode Control (TCVSSMC)

1991 **Member IEEE IES, CSS, IAS, –** Status Senior member

1985 - 1991 **Head of the Concel for Power Electronics ENERGOINVEST, Sarajevo**

Reviews

IEEE Transactions on Industrial Electronics; IEEE Transactions on Mechatronics; IEEE Transactions on Power Electronics; IEEE Transactions onIndustrial Information Technology; IEEE Transactions on Industrial Applications; IEEE Control System Magazine; International Journal of Control; Journal of Physics; Asian Journal of Control; Automatica;Automatika.

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