

Assoc. Prof. CABBAR VEYSEL BAYSAL

Personal Information

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International Researcher IDs

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Publons / Web Of Science ResearcherID: J-1856-2018

Yoksis Researcher ID: 103175

Biography

Cabbar Veysel Baysal was born in Adana, Turkey. He received the B.S. and M.S. degrees in electrical and electronics engineering from Middle East Technical University, Ankara, Turkey, in 1990 and 1993, respectively, and the Ph.D. degree in electrical and electronics engineering from Cukurova University, Adana, in 2006. From 1993 to 2009, he was an Engineer and a Manager in national and multi-national companies such as Unilever, Amylum Nisasta, and CJSC Intercorn, designing and implementing many plant-scale automation and electrical power projects. He had also served as a Consultant for industrial projects. From 2009 to 2010, he was a Visiting Professor with the Robotics Laboratory, at Universidad Carlos III de Madrid, Spain. From 2012 to 2024, he was an Assistant Professor at the Department of Biomedical Engineering, at Cukurova University. He is the author or coauthor of about 25 research publications between ISI/Scopus papers and conference papers. His current research interests include rehabilitation robotics, bio-inspired robotics, robot hand grasp synthesis, and intelligent control systems. He is a Senior Member of the IEEE since 2012. He was awarded the Associate Professor title by UAK as of March 2024 and continues to work at the Department of Biomedical Engineering, at Cukurova University.

He is an experienced Associate Professor with a demonstrated history of working in the research & industry. He has strong design and services experience in industrial automation, electrical power, and energy systems. His research experience is focused on robotics and intelligent control systems. He is a professional, skilled in C/C++, various CAD software and MATLAB, adaptive systems, human-robot interaction, rehabilitation robotics, energy, and engineering.

Education Information

Doctorate, Cukurova University, Fen Bilimleri Enst, Elektrik Elektronik Müh. Abd- Robotik Ve Kontrol Sistemleri, Turkey 1999 - 2006

Postgraduate, Middle East Technical University, Fen Bilimleri Enst, Elektrik Elektronik Müh. Abd- Kontrol Sistemleri, Turkey 1990 - 1993

Undergraduate, Middle East Technical University, Faculty Of Engineering, Department Of Electrical And Electronics Engineering, Turkey 1985 - 1990

Foreign Languages

English, C1 Advanced

Dissertations

Doctorate, Preshaping Control for Dexterous Manipulation with a Multifingered Robot Hand, Cukurova University, Institute Of Natural And Applied Sciences, Electrical And Electronics Engineering, 2006

Postgraduate, Intelligent Sensorimotor Control of Robot Hand Preshaping, Middle East Technical University, Graduate School Of Natural And Applied Sciences, Electrical And Electronics Engineering, 1993

Research Areas

Information Systems, Communication and Control Engineering, Robotics and Mechatronics Systems, Human and Robot Interaction, Biomedical Engineering, Biomechanics, Clinical Robots, Rehabilitation, Rehabilitation, Mechanical Engineering, Machine Theory and Dynamics, Robotics, Mechatronics, Engineering and Technology

Academic Titles / Tasks

Associate Professor, Cukurova University, Mühendislik Fakültesi, Biyomedikal Mühendisliği, 2024 - Continues

Assistant Professor, Cukurova University, Mühendislik Fakültesi, Biyomedikal Mühendisliği, 2018 - 2024

Assistant Professor, Cukurova University, Mühendislik Fakültesi, Biyomedikal Mühendisliği, 2012 - 2018

Assistant Professor, Erciyes University, Mühendislik Fakültesi, Mekatronik Mühendisliği, 2010 - 2012

Assistant Professor, Universidad Carlos III de Madrid, Escuela Superior Politecnica De Ingenieria, Departamento Ingenieria De Sistemas Y Automatica, 2009 - 2010

Assistant Professor, Mersin University, Tarsus Faculty Of Technical Education, Department Of Electronics And Computer Education, 2008 - 2009

Assistant Professor, Erciyes University, Mühendislik Fakültesi, Elektrik- Elektronik Mühendisliği , 2007 - 2007

Lecturer, Cukurova University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği, 1998 - 2001

Academic and Administrative Experience

Mersin University, Tarsus Teknik Eğitim Fakültesi, Elektronik Ve Bilgisayar Eğitimi Bölümü, 2008 - 2009

Mersin University, Tarsus Teknik Eğitim Fakültesi, Elektronik Ve Bilgisayar Eğitimi Bölümü, 2008 - 2009

Erciyes University, Mühendislik Fakültesi, Elektrik Elektronik Mühendisliği, 2007 - 2007

Cukurova University, Mimarlık Mühendislik Fakültesi, Elektrik Elektronik Mühendisliği, 1999 - 2001

Courses

Medical Robotics, Postgraduate, 2019 - 2020, 2018 - 2019, 2017 - 2018

Biomechatronics, Postgraduate, 2019 - 2020, 2018 - 2019, 2017 - 2018

Rehabilitation engineering, Undergraduate, 2019 - 2020, 2018 - 2019, 2017 - 2018, 2016 - 2017

Circuit Analysis, Undergraduate, 2019 - 2020, 2018 - 2019, 2017 - 2018, 2016 - 2017, 2015 - 2016, 2014 - 2015, 2013 - 2014

Control Systems, Undergraduate, 2019 - 2020, 2018 - 2019, 2017 - 2018, 2016 - 2017

Circuit Analysis Lab, Undergraduate, 2019 - 2020, 2018 - 2019, 2017 - 2018, 2016 - 2017, 2015 - 2016, 2014 - 2015, 2013 - 2014

Signals and Systems, Undergraduate, 2019 - 2020, 2018 - 2019, 2017 - 2018, 2016 - 2017, 2015 - 2016

Computer Programming II, Undergraduate, 2015 - 2016, 2014 - 2015, 2013 - 2014

Computer Programming I, Undergraduate, 2015 - 2016, 2014 - 2015, 2013 - 2014

Electrical & Electronics Eng. Fund., Undergraduate, 2012 - 2013, 2011 - 2012

Intelligent Robotics II, Postgraduate, 2012 - 2013

Electrical & Electronics Eng. Fund., Undergraduate, 2012 - 2013
Intelligent Robotics I, Postgraduate, 2012 - 2013
Elektromekanik Enerji Dönüşümü, Undergraduate, 2011 - 2012
Akıllı Robotik, Postgraduate, 2011 - 2012
Elektronik Devreler I , Undergraduate, 2011 - 2012

Advising Theses

Baysal C. V., Development of a multimodal participation assessment system for upper limb rehabilitation, Doctorate, E.ÖDEMİŞ(Student), 2022
Baysal C. V., Pnömatik yapay kasların rehabilitasyon amaçlı kullanımı için kontrol sistemi tasarımı, Postgraduate, E.TUĞBA(Student), 2020
Baysal C. V., Derin öğrenme yöntemi ile yüzeysel EMG işaretlerini sınıflandırarak dirsek eklemi için pozisyon kestirimi, Postgraduate, A.PIROL(Student), 2020
Baysal C. V., Real Time Elbow Joint Angle Estimation using SEMG signals, Postgraduate, D.Ali(Student), 2015
Baysal C. V., Design of a Control System for Rehabilitation Robotic Arm Orthosis, Postgraduate, E.Ödemiş(Student), 2015

Jury Memberships

Doctoral Examination, Doctoral Examination, Erciyes University, May, 2022
Competition, Tübitak Lisans Bitirme Projeleri Yarışması, Tübitak, October, 2018
Competition, Tübitak Ortaokulla arası Proje Yarışması, Tübitak, March, 2017
Post Graduate, Yüksek Lisans Tez Jüri Üyeliği, Erciyes Üniv. FBE. Biyomedikal ABD, July, 2015

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Clinical evaluation of a patient participation assessment system for upper extremity rehabilitation exercises**
Ödemiş E., Baysal C. V.
Medical & Biological Engineering & Computing, vol.63, no.1, pp.1-17, 2024 (SCI-Expanded)
- II. **Implementation of Rehabilitation Modalities Using a Low-Cost PAM Actuated Robotic Orthosis**
Baysal C. V.
IEEE ACCESS, vol.11, pp.103601-103615, 2023 (SCI-Expanded)
- III. **An Inverse Dynamics-Based Control Approach for Compliant Control of Pneumatic Artificial Muscles**
Baysal C. V.
Actuators, vol.11, no.111, pp.1-26, 2022 (SCI-Expanded)
- IV. **Development of a participation assessment system based on multimodal evaluation of user responses for upper limb rehabilitation**
Ödemiş E., Baysal C. V.
BIOMEDICAL SIGNAL PROCESSING AND CONTROL, vol.70, no.1, pp.1-27, 2021 (SCI-Expanded)
- V. **An Intelligent Inference System for Robot Hand Optimal Grasp Preshaping**
BAYSAL C. V., ERKMEN A. M.
INTERNATIONAL JOURNAL OF COMPUTATIONAL INTELLIGENCE SYSTEMS, vol.3, no.5, pp.656-673, 2010 (SCI-Expanded)

Articles Published in Other Journals

- I. **Neural Network Based Inverse Modelling for Pneumatic Artificial Muscles**

- Baysal C. V.
Avrupa Bilim ve Teknoloji Dergisi, vol.23, pp.55-62, 2021 (Peer-Reviewed Journal)
- II. **An ANFIS based inverse modeling for pneumatic artificial muscles**
Baysal C. V.
International Journal of Applied Mathematics, Electronics and Computers, vol.8, no.3, pp.50-56, 2020 (Peer-Reviewed Journal)
- III. **An Experimental Evaluation of Control Modes for Pneumatic Artificial Muscles Using Fast on/off Valves**
Deveci E. T., Baysal C. V.
Çukurova Üniversitesi Mühendislik-Mimarlık Fakültesi Dergisi, vol.35, no.2, pp.401-412, 2020 (Peer-Reviewed Journal)
- IV. **Design and Evaluation of a Multi-Mode Robotic Arm Orthosis using Musculoskeletal Simulation**
Ödemiş E., Baysal C. V.
Çukurova Üniversitesi Mühendislik-Mimarlık Fakültesi Dergisi, vol.33, no.3, pp.133-144, 2018 (Peer-Reviewed Journal)
- V. **A FUZZY INFERENCE SYSTEM FOR PRESHAPE DETERMINATION OF ROBOT HAND GRASPING**
BAYSAL C. V.
Cukurova University, Journal of Faculty of Engineering and Architecture, vol.22, no.2, pp.21-30, 2007 (Peer-Reviewed Journal)
- VI. **A Neural Network Classifier for Robot Hand Preshape and Grasp Task Matching**
BAYSAL C. V., GÜNGÖR S.
Çukurova Üniversitesi Mühendislik-Mimarlık Fakültesi Dergisi, vol.22, no.2, pp.31-37, 2007 (Peer-Reviewed Journal)
- VII. **Application of Fuzzy Similarity Measures to Robot Hand Preshape and Grasp Task Matching**
BAYSAL C. V., GÜNGÖR S.
Çukurova Üniversitesi Mühendislik-Mimarlık Fakültesi Dergisi, vol.22, no.2, pp.13-20, 2007 (Peer-Reviewed Journal)
- VIII. **A neural network classifier for robot hand preshape and grasp task matching**
BAYSAL C. V.
Çukurova Üniversitesi Mühendislik Mimarlık Fakültesi Dergisi, vol.22, no.2, pp.31-37, 2007 (Peer-Reviewed Journal)

Refereed Congress / Symposium Publications in Proceedings

- I. **Experimental evaluation of the effects of therapy task difficulty adjustment algorithms on patient active participation**
ÖDEMİŞ E., BAYSAL C. V.
5th International Eurasian Conference on Science, Engineering and Technology (EurasianSciEnTech 2024), Ankara, Turkey, 26 - 28 June 2024, pp.755-762
- II. **Deep Learning Based Elbow Joint Angle Estimation Using sEMG Signal**
Pirol A., Baysal C. V.
1th INTERNATIONAL HEALTH SCIENCES AND BIOMEDICAL CONGRESS , Ankara, Turkey, 23 - 24 January 2021, vol.1, pp.62-69
- III. **Evaluation of Pneumatic Artificial Muscle Models for Robotic Applications**
Deveci E. T., Baysal C. V.
CILICIA INTERNATIONAL SYMPOSIUM ON ENGINEERING AND TECHNOLOGY CİSET 2018, Mersin, Turkey, 26 - 27 October 2018, pp.93-97
- IV. **Implementation of fuzzy similarity methods for manipulative hand posture evaluation**
Baysal C. V.
2010 IEEE International Conference on Systems, Man and Cybernetics, SMC 2010, İstanbul, Turkey, 10 - 13 October

2010, pp.1320-1324

V. **Preshape induced grasp controller for dextrous manipulation with a multifingered robot hand**
Baysal C. V., ERKMEN A. M.

IEEE International Conference on Mechatronics (ICM 2004), İstanbul, Turkey, 3 - 05 June 2004, pp.78-83

VI. **A Computer Impementation of Fractal Based Inference Network for Sensorimotor Robot Hand Preshaping**

ERKMEN A. M., BAYSAL C. V.

IEEE-IROS92 International Conference on Intelligent Robotics and Systems, Raleigh, United States Of America, 7 - 10 July 1992

Supported Projects

BAYSAL C. V., ÖDEMİŞ E., Project Supported by Higher Education Institutions, DEVELOPMENT OF A MULTIMODAL PARTICIPATION ASSESSMENT SYSTEM FOR UPPER LIMB REHABILITATION, 2019 - 2022

BAYSAL C. V., DEVECİ E. T., Project Supported by Higher Education Institutions, Yapay Pnömatik Kasların Rehabilitasyon Amaçlı Kullanımı İçin Akıllı Kontrol Sistemi Tasarımı, 2019 - 2021

AVCI M., GÜVEN M., BAYSAL C. V., AYDIN A., İSTANBULLU M., ÖDEMİŞ E., KESKİNOĞLU C., Project Supported by Higher Education Institutions, BİYOMEDİKAL MÜHENDİSLİĞİ BÖLÜMÜ LİSANS ÖĞRENCİ LABORATUVARLARININ GENİŞLETİLMESİ VE GELİŞTİRİLMESİ, 2018 - 2019

GÜVEN M., AVCI M., CENGİZLER Ç., BAYSAL C. V., EROĞLU D. A., ÖDEMİŞ E., Project Supported by Higher Education Institutions, ÖĞRENCİ LABORATUURLARI ALTYAPI GELİŞTİRME PROJESİ, 2014 - 2015

BAYSAL C. V., ÖDEMİŞ E., Project Supported by Higher Education Institutions, Rehabilitasyon Amaçlı Robotik Kol Ortezi İçin Kontrol Sistemi Tasarımı, 2014 - 2015

BAYSAL C. V., Project Supported by Higher Education Institutions, Biyo-işaret Geri Beslemeli Deneysel Amaçlı Robotik Kol Ortezi Tasarımı, 2013 - 2015

Baysal C. V., FP7 Project, HANDLE: Developmental pathway towards autonomy and dexterity in robot in-hand manipulation, 2009 - 2013

Memberships / Tasks in Scientific Organizations

IEEE, Member, 1993 - Continues

Scientific Refereeing

IEEE ACCESS, SCI Journal, November 2022

Research Project of the Presidency of Turkey Health Institutes (TÜSEB), TÜSEB, Turkey, June 2022

TUBİTAK Project, 1512 - Progressive Support Program for Entrepreneurship, TUBİTAK, Turkey, May 2022

ROBOTİK PANELİ-2, Other Journals, August 2017

SÜLEYMAN DEMİREL ÜNİV. FEN BİLİMLERİ ENST., National Scientific Refreed Journal, July 2017

ROBOTİK PANELİ-1, Other Journals, May 2017

INTERNATIONAL JOURNAL OF ROBOTICS AND INTELLIGENT SYSTEMS, SCI Journal, March 2017

INTERNATIONAL JOURNAL OF ROBOTICS AND INTELLIGENT SYSTEMS, SCI Journal, November 2016

INTERNATIONAL JOURNAL OF ROBOTICS AND INTELLIGENT SYSTEMS, SCI Journal, July 2016

TUBİTAK TEYDEB, Other Journals, March 2016

TUBİTAK Project, August 2015

TUBİTAK TEYDEB Proje Hakemlikleri, Other Journals, May 2015

Teknogirişim Panel Hakemliği, Other Journals, May 2015

INTERNATIONAL JOURNAL OF ROBOTICS AND INTELLIGENT SYSTEMS, SCI Journal, April 2015

TUBITAK Project, April 2015

TUBİTAK TEYDEB Proje Hakemlikleri, Other Journals, April 2014

International Journal of Robotics and Intelligent Systems, SCI Journal, January 2014

Machine Vision and Applications, SCI Journal, October 2013

INTERNATIONAL JOURNAL OF ROBOTICS AND INTELLIGENT SYSTEMS, SCI Journal, April 2013

INTERNATIONAL JOURNAL OF ROBOTICS AND INTELLIGENT SYSTEMS, SCI Journal, June 2012

INTERNATIONAL JOURNAL OF ROBOTICS AND INTELLIGENT SYSTEMS, SCI Journal, May 2011

INTERNATIONAL JOURNAL OF ROBOTICS AND INTELLIGENT SYSTEMS, SCI Journal, February 2010

INTERNATIONAL JOURNAL OF ROBOTICS AND INTELLIGENT SYSTEMS, SCI Journal, December 2009

INTERNATIONAL JOURNAL OF ROBOTICS AND INTELLIGENT SYSTEMS, SCI Journal, October 2009

INTERNATIONAL JOURNAL OF ROBOTICS AND INTELLIGENT SYSTEMS, SCI Journal, July 2009

INTERNATIONAL JOURNAL OF ROBOTICS AND INTELLIGENT SYSTEMS, SCI Journal, March 2008

Metrics

Publication: 19

Citation (WoS): 10

Citation (Scopus): 12

H-Index (WoS): 3

H-Index (Scopus): 4

Congress and Symposium Activities

Summer School on Soft Manipulation DLR / IEEE Robotics & Automation Society, Attendee, München, Germany, 2017

Summer School on Neurorehabilitation - CSIC / IEEE Robotics & Automation Society, Attendee, Baiona, Spain, 2014

IEEE SMC2010, Attendee, ISTANBUL, Turkey, 2010

ROBOTICS SCIENCE AND SYSTEMS, Attendee, ZARAGOSA, Spain, 2010

IEEE ICM2004, Attendee, ISTANBUL, Turkey, 2004

IEEE-IROS1992, Attendee, NORTH CAROLINA RALEIGH, United States Of America, 1992

Non Academic Experience

CJSC Intercorn /Ukrayna

Tat Nişasta A.Ş:

Amylum Nişasta-Tate and Lyle Co.

Unilever Türkiye

T.Ş.F.A.Ş-Elektromekanik Aygıtlar Fab. (EMAF)