CABBAR VEYSEL BAYSAL
ASSOC. PROF.

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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 20 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

Doctorate 1999 - 2006	Cukurova University, Fen Bilimleri Enstitüsü, Elektrik-Elektronik Mühendisliği, Turkey
Postgraduate 1990 - 1993	Middle East Technical University, Faculty Of Engineering, Department Of Electrical And Electronics Engineering, Turkey
Undergraduate 1985 - 1990	Middle East Technical University, Faculty Of Engineering, Department Of Electrical And Electronics Engineering, Turkey

Foreign Languages

English, C2 Mastery

Dissertations

Doctorate, Preshaping Control for Dexterous Manipulation with a Multifingered Robot Hand, Cukurova University, Fen Bilimleri Enstitüsü, Elektrik-Elektronik Mühendisliği, 2006

Postgraduate, Intelligent Sensorimotor Control of Robot Hand Preshaping, Middle East Technical University, Faculty Of Engineering, Department Of Electrical And Electronics Engineering, 1993

Academic Positions

Associate Professor 2024 - Continues	Cukurova University, Mühendislik Fakültesi, Biyomedikal Mühendisliği
Assistant Professor 2018 - 2024	Cukurova University, Mühendislik Fakültesi, Biyomedikal Mühendisliği
Assistant Professor 2012 - 2018	Cukurova University, Mühendislik Fakültesi, Biyomedikal Mühendisliği
Assistant Professor 2010 - 2012	Erciyes University, Mühendislik Fakültesi, Mekatronik Mühendisliği
Assistant Professor 2009 - 2010	Universidad Carlos III de Madrid, Escuela Superior Politecnica De Ingenieria, Departamento Ingenieria De Sistemas Y Automatica
Assistant Professor 2008 - 2009	Mersin University, Tarsus Faculty Of Technıcal Educatıon, Department Of Electronıcs And Computer Educatıon
Assistant Professor 2007 - 2007	Erciyes University, Mühendislik Fakültesi, Elektrik- Elektronik Mühendisliği
Lecturer 1998 - 2001	Cukurova University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği

Funded Projects

1. BAYSAL C. V., ÖDEMİŞ E., Project Supported by Higher Education Institutions, DEVELOPMENT OF A MULTIMODAL PARTICIPATION ASSESSMENT SYSTEM FOR UPPER LIMB REHABILITATION, 2019 - 2022
2. 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
3. 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
4. GÜVEN M., AVCI M., CENGİZLER Ç., BAYSAL C. V., EROĞLU D. A., ÖDEMİŞ E., Project Supported by Higher Education Institutions, ÖĞRENCİ LABORATUARLARI ALTYAPI GELİŞTİRME PROJESİ, 2014 - 2015
5. BAYSAL C. V., ÖDEMİŞ E., Project Supported by Higher Education Institutions, Rehabilitasyon Amaçlı Robotik Kol Ortezi İçin Kontrol Sistemi Tasarımı, 2014 - 2015

6. BAYSAL C. V., Project Supported by Higher Education Institutions, Biyo-işaret Geri Beslemeli Deneysel Amaçlı Robotik Kol Ortezi Tasarımı, 2013 - 2015
7. Baysal C. V., FP7 Project, HANDLE: Developmental pathway towards autonomy and dexterity in robot in-hand manipulation, 2009 - 2013

Jury Memberships

Doctorate, Doctorate, Erciyes Üniversitesi, July, 2024
Doctoral Examination, Doctoral Examination, Erciyes University, May, 2022
Competition, Tübitak Lisans Bitirme Projeleri Yarışması, Tübitak, October, 2018
Competition, Tübitak Ortaokullar arası Proje Yarışması, Tübitak, March, 2017
Post Graduate, Yüksek Lisans Tez Jüri Üyeliği, Erciyes Üniv. FBE. Biyomedikal ABD, July, 2015

Designed Lessons

Postgraduate
Baysal C. V., Medikal Robotik, Postgraduate, 2018 - 2019
Baysal C. V., Biyomekatronik, Postgraduate, 2017 - 2018
Undergraduate
Baysal C. V., Rehabilitasyon Mühendisliği, Undergraduate, 2016 - 2017
Baysal C. V., Kontrol Sistemleri, Undergraduate, 2016 - 2017
Baysal C. V., Signals and Systems, Undergraduate, 2015 - 2016
Baysal C. V., Devre Lab., Undergraduate, 2014 - 2015
Baysal C. V., Devre Analizi, Undergraduate, 2013 - 2014
Baysal C. V., Bilgisayar Programlama, Undergraduate, 2012 - 2013

Designed Programs

Baysal C. V., Güven M., Avcı M., Aydın A., Canpolat Ç., Doctorate, Ph.D in Biyomedical Engineering, 2019 - Continues
Baysal C. V., Güven M., Avcı M., İstanbullu M., Ödemiş E., Eroğlu D. A., Undergraduate, Biyomedikal Mühendisliği, 2012 - Continues

Journal articles indexed in SCI, SSCI, and AHCI

1. **Patient performance assessment methods for upper extremity rehabilitation in assist-as-needed therapy strategies: a comprehensive review**
   Ödemiş E., Baysal C. V., Inci M.
   MEDICAL AND BIOLOGICAL ENGINEERING AND COMPUTING, vol.1, no.1, pp.1-20, 2025 (SCI-Expanded)
2. **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)
3. **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)
4. **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)

5. **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)
6. **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

1. **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)
2. **An ANFIS based inverse modeling for pneumatic artificial muscles**
   Baysal C. V.
   vol.8, no.3, pp.50-56, 2020 (Peer-Reviewed Journal)
3. **An Experimental Evaluation of Control Modes for Pneumatic Artificial Muscles Using Fast on/off Valves**
   Deveci E. T., Baysal C. V.
   Çukurova Üniversitesi Mühendislik-Mimarlik Fakültesi Dergisi, vol.35, no.2, pp.401-412, 2020 (Peer-Reviewed Journal)
4. **Design and Evaluation of a Multi-Mode Robotic Arm Orthosis using Musculoskeletal Simulation**
   Ödemiş E., Baysal C. V.
   Çukurova Üniversitesi Mühendislik-Mimarlik Fakültesi Dergisi, vol.33, no.3, pp.133-144, 2018 (Peer-Reviewed Journal)
5. **A Neural Network Classifier for Robot Hand Preshape and Grasp Task Matching**
   Baysal C. V., Güngör S.
   Çukurova Üniversitesi Mühendislik-Mimarlik Fakültesi Dergisi, vol.22, no.2, pp.31-37, 2007 (Peer-Reviewed Journal)
6. **Application of Fuzzy Similarity Measures to Robot Hand Preshape and Grasp Task Matching**
   Baysal C. V., Güngör S.
   Çukurova Üniversitesi Mühendislik-Mimarlik Fakültesi Dergisi, vol.22, no.2, pp.13-20, 2007 (Peer-Reviewed Journal)
7. **A FUZZY INFERENCE SYSTEM FORPRESHAPE DETERMINATION OF ROBOT HAND GRASPING**
   Baysal C. V., Güngör S.
   Çukurova Üniversitesi Mühendislik-Mimarlik Fakültesi Dergisi, vol.22, no.2, pp.21-30, 2007 (Peer-Reviewed Journal)

Papers Presented at Peer-Reviewed Scientific Conferences

1. **Experimental evaluation of the effects of therapy task difficulty adjustment algorithms on patient active participation**
   Ödemiş E., Baysal C. V.
   5th International Eurasian Conference on Science, Engineering and Technology (EurasianSciEnTech 2024), Ankara, Turkey, 26 - 28 June 2024, pp.755-762, (Full Text)
2. **NONLINEAR ARX BASED INVERSE MODELLING FOR PNEUMATIC ARTIFICIAL MUSCLES**
   Baysal C. V.
   2.INTERNATIONAL BLACK SEA SCIENTIFIC RESEARCH AND INNOVATION CONGRESS, Trabzon, Turkey, 28 - 30

June 2024, pp.33-42, (Full Text)

3. **Hammerstein-Wiener Based Inverse Modelling for Pneumatic Artificial Muscles**
Baysal C. V.
5th International Eurasian Conference on Science, Engineering and Technology (EurasianSciEnTech 2024),
Ankara, Turkey, 26 - 28 June 2024, pp.909-915, (Full Text)

4. **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, (Full Text)

5. **Evaluation of Pneumatic Artificial Muscle Models forRobotic Applications**
Deveci E. T., Baysal C. V.
CILICIA INTERNATIONAL SYMPOSIUM ON ENGINEERING AND TECHNOLOGY CISET 2018, Mersin, Turkey, 26 - 27
October 2018, pp.93-97, (Full Text)

6. **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, (Full Text)

7. **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, (Full
Text)

8. **A Computer Impementation of Fractal Based Inference Network for Sensorimotor Robot Hand
Preshaping**
Erkmen A. M., Baysal C. V.
IEEE-IROS92 Internationational Conference on Intelligent Robotics and Systems, North Carolina, United States Of
America, 7 - 10 July 1992, (Full Text)

Academic and Administrative Experience

2012 - Continues	**Member of Programme Steering Committee**	Cukurova University, Mühendislik Fakültesi, Biyomedikal Mühendisliği
2008 - 2009	**Head of Department**	Mersin University, Tarsus Teknik Eğitim Fakültesi, Elektronik Ve Bilgisayar Eğitimi Bölümü
2008 - 2009	**Head of Department**	Mersin University, Tarsus Teknik Eğitim Fakültesi, Elektronik Ve Bilgisayar Eğitimi Bölümü
2007 - 2007	**Academic Council Member of Department**	Erciyes University, Mühendislik Fakültesi, Elektrik- Elektronik Mühendisliği
1999 - 2001	**Academic Council Member of Department**	Cukurova University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği

Courses

Postgraduate
Medical Robotics, Postgraduate, 2019 - 2020, 2018 - 2019, 2017 - 2018
Biomechatronics, Postgraduate, 2019 - 2020, 2018 - 2019, 2017 - 2018
Intelligent Robotics II, Postgraduate, 2012 - 2013

Intelligent Robotics I, Postgraduate, 2012 - 2013

Akıllı Robotik, Postgraduate, 2011 - 2012

Undergraduate

Circuit Analysis, Undergraduate, 2024 - 2025, 2023 - 2024, 2022 - 2023, 2021 - 2022, 2020 - 2021, 2019 - 2020, 2018 - 2019, 2017 - 2018, 2016 - 2017, 2015 - 2016, 2014 - 2015, 2013 - 2014

Circuit Analysis Lab, Undergraduate, 2024 - 2025, 2023 - 2024, 2022 - 2023, 2021 - 2022, 2020 - 2021, 2019 - 2020, 2018 - 2019, 2017 - 2018, 2016 - 2017, 2015 - 2016, 2014 - 2015, 2013 - 2014

Rehabilitation engineering, Undergraduate, 2023 - 2024, 2022 - 2023, 2021 - 2022, 2020 - 2021, 2019 - 2020, 2018 - 2019, 2017 - 2018, 2016 - 2017

Control Systems, Undergraduate, 2023 - 2024, 2022 - 2023, 2021 - 2022, 2020 - 2021, 2019 - 2020, 2018 - 2019, 2017 - 2018, 2016 - 2017

Signals and Systems, Undergraduate, 2023 - 2024, 2022 - 2023, 2021 - 2022, 2020 - 2021, 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

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

Elektromekanik Enerji Dönüşümü, Undergraduate, 2011 - 2012

Elektronik Devreler I , Undergraduate, 2011 - 2012

Supervised 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 yüzeyel EMG işaretlerini sınıflandırarak dirsek eklemi için pozisyon kestirimi, Postgraduate, A.PİROL(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 Orthesis, Postgraduate, E.Ödemiş(Student), 2015

Memberships and Roles in Scientific Organizations

IEEE - Institute of Electrical and Electronics Engineers, Member, 1993 - Continues, United States Of America

Peer Reviews in Scientific Publications

CONTROL ENGINEERING PRACTICE, SCI Journal, December 2024

IEEE ACCESS, SCI Journal, December 2024

IEEE ACCESS, SCI Journal, October 2024

NONLINEAR DYNAMICS, SCI Journal, February 2024

Discover Applied Science, Journal Indexed in ESCI, September 2023

JOURNAL OF INTELLIGENT AND ROBOTIC SYSTEMS THEORY AND APPLICATIONS, Journal Indexed in SCI-E, July 2023

JOURNAL OF INTELLIGENT AND ROBOTIC SYSTEMS THEORY AND APPLICATIONS, SCI Journal, March 2023

IEEE ACCESS, SCI Journal, March 2023

IEEE ACCESS, SCI Journal, November 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

JOURNAL OF INTELLIGENT AND ROBOTIC SYSTEMS THEORY AND APPLICATIONS, 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

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

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

Scientific Project Refereeing

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

TUBITAK Project, 1512 - Progressive Support Program for Entrepreneurship, May 2022

TUBITAK Project, August 2015

TUBITAK Project, April 2015

Metrics

Publication: 21

Citation (WoS): 10

Citation (Scopus): 12

H-Index (WoS): 4

H-Index (Scopus): 4

Congress and Symposium Activities

Summer Screws 2024, Attendee, İzmir, Turkey, 2024

SSNR2024, Attendee, Vigo, Spain, 2024

IEEE-SOMA 2017, Attendee, Munich, Germany, 2017

SSNR2014, Attendee, Vigo, Spain, 2014

IEEE SMC2010, Attendee, ISTANBUL, Turkey, 2010

RSS2010, Attendee, Zaragoza, Spain, 2010

IEEE ICM2004, Attendee, ISTANBUL, Turkey, 2004

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

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

Non Academic Experience

Business Organization (private), CJSC Intercorn /Ukrayna, Proje, Proje Elektrik Otomasyon Koordinatörü

Business Establishment Private, Tat Nişasta A.Ş:, Proje, Bakım-Enerji, Bakım Enerji Müd.

Business Establishment Private, Amylum Nişasta- ADM & Tate and Lyle Co., Proje, Bakım-Enerji, Elektrik Otomasyon Şefi/Enerji Yöneticisi

Business Establishment Private, Unilever Türkiye, Çorlu Fab.-Adana Fab., Bakım -Onarım Yöneticisi

State Economic Organization SEO, T.Ş.F.A.Ş-Elektromekanik Aygıtlar Fab. (EMAF), Ar-GE, Ar-Ge Müh.