

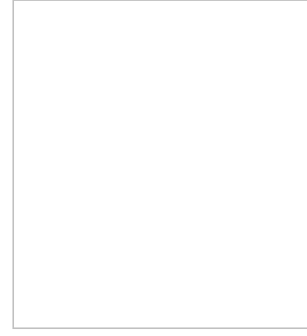
## Asst. Prof. MUSTAFA MERT ANKARALI

### Personal Information

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### Education Information

Doctorate, Johns Hopkins University, Department Of Mechanical Engineering At The Whiting School Of Engineering, United States Of America 2010 - 2015

Post Graduate, Middle East Technical University, Graduate School of Natural and Applied Sciences, Elektrik Ve Elektronik Mühendisliği (Y) (Tezli), Turkey 2008 - 2010

Under Graduate, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, Turkey 2003 - 2007

### Dissertations

Doctorate, Variability, symmetry, and dynamics in human rhythmic motor control, Johns Hopkins University, Department Of Mechanical Engineering At The Whiting School Of Engineering, 2015

Post Graduate, Control of hexapedal pronking through a dynamically embedded spring loaded inverted pendulum template, Middle East Technical University, Graduate School of Natural and Applied Sciences, Elektrik Ve Elektronik Mühendisliği (Y) (Tezli), 2010

### Research Areas

Information Systems, Communication and Control Engineering, Control and System Engineering, Robotics and Mechatronics Systems, Engineering and Technology

### Academic Titles / Tasks

Assistant Professor, Middle East Technical University, Faculty of Engineering, Elektrik-Elektronik Mühendisliği Bölümü, 2018 - Continues

Assistant Professor, Middle East Technical University, Faculty of Engineering, Elektrik-Elektronik Mühendisliği Bölümü, 2018 - 2018

### Advising Theses

Orguner U., Ankaralı M. M. , FEEDBACK MOTION PLANNING OF UNMANNED UNDERWATER VEHICLES VIA RANDOM SEQUENTIAL COMPOSITION, Doctorate, E.Ege(Student), 2019

Ankaralı M. M. , Using an Electronic Gyroscope with Real-Time Microcontroller; Design and Implementation of an Impedance Type Kinesthetic Interface with High Pose, Force and Timing Fidelity, Post Graduate, S.YİĞİT(Student), 2019

SARANLI A., ANKARALI M. M. , RG-trees: Trajectory-free feedback motion planning using sparse random reference governor trees, Post Graduate, F.GÖLBOL(Student), 2018

SARANLI A., ANKARALI M. M. , Control of an underactuated system around a periodicorbit, Post Graduate,

## Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

- **Variability in locomotor dynamics reveals the critical role of feedback in task control.**  
Uyanik I., Sefati S., Stamper S., Cho K., Ankarali M. M. , Fortune E., Cowan N.  
eLife, vol.9, 2020 (Journal Indexed in SCI)
- **Feedback motion planning of unmanned surface vehicles via random sequential composition**  
Ege E., Ankarali M. M.  
TRANSACTIONS OF THE INSTITUTE OF MEASUREMENT AND CONTROL, vol.41, pp.3321-3330, 2019 (Journal Indexed in SCI)
- **Frequency-Domain Subspace Identification of Linear Time-Periodic (LTP) Systems**  
Uyanik İ., Saranlı U., Ankarali M. M. , Cowan N., Morgül Ö.  
IEEE TRANSACTIONS ON AUTOMATIC CONTROL, vol.64, pp.2529-2536, 2019 (Journal Indexed in SCI)
- **Complementary spatial and timing control in rhythmic arm movements**  
Nickl R. W. , Ankarali M. M. , Cowan N. J.  
JOURNAL OF NEUROPHYSIOLOGY, vol.121, pp.1543-1560, 2019 (Journal Indexed in SCI)
- **State-space identification of switching linear discrete time-periodic systems with known scheduling signals**  
Uyanik I., Hamzacebi H., Ankarali M. M.  
TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, vol.27, pp.2755-2768, 2019 (Journal Indexed in SCI)
- **Body stiffness and damping depend sensitively on the timing of muscle activation in lampreys**  
Tytell E. D. , Carr J. A. , Danos N., Wagenbach C., Sullivan C. M. , Kiemel T., Cowan N. J. , Ankarali M. M.  
INTEGRATIVE AND COMPARATIVE BIOLOGY, vol.58, pp.860-873, 2018 (Journal Indexed in SCI)
- **Identification of a vertical hopping robot model via harmonic transfer functions**  
Uyanik I., Ankarali M. M. , Cowan N. J. , SARANLI U., Morgul O.  
TRANSACTIONS OF THE INSTITUTE OF MEASUREMENT AND CONTROL, vol.38, pp.501-511, 2016 (Journal Indexed in SCI)
- **Walking dynamics are symmetric (enough)**  
Ankarali M. M. , Sefati S., Madhav M. S. , Long A., Bastian A. J. , Cowan N. J.  
JOURNAL OF THE ROYAL SOCIETY INTERFACE, vol.12, 2015 (Journal Indexed in SCI)
- **Feedback Control as a Framework for Understanding Tradeoffs in Biology**  
Cowan N. J. , Ankarali M. M. , Dyhr J. P. , Madhav M. S. , Roth E., Sefati S., Sponberg S., Stamper S. A. , Fortune E. S. , Daniel T. L.  
INTEGRATIVE AND COMPARATIVE BIOLOGY, vol.54, pp.223-237, 2014 (Journal Indexed in SCI)
- **Haptic feedback enhances rhythmic motor control by reducing variability, not improving convergence rate**  
Ankarali M. M. , Sen H. T. , De A., Okamura A. M. , Cowan N. J.  
JOURNAL OF NEUROPHYSIOLOGY, vol.111, pp.1286-1299, 2014 (Journal Indexed in SCI)
- **Control of underactuated planar pronking through an embedded spring-mass Hopper template**  
Ankarali M. M. , Saranlı U.  
AUTONOMOUS ROBOTS, vol.30, pp.217-231, 2011 (Journal Indexed in SCI)
- **Approximate analytic solutions to non-symmetric stance trajectories of the passive Spring-Loaded Inverted Pendulum with damping**  
Saranli U., Arslan O., Ankarali M. M. , Morgul O.  
NONLINEAR DYNAMICS, vol.62, pp.729-742, 2010 (Journal Indexed in SCI)
- **Stride-to-stride energy regulation for robust self-stability of a torque-actuated dissipative spring-mass hopper**  
Ankarali M. M. , Saranlı U.  
CHAOS, vol.20, 2010 (Journal Indexed in SCI)

## Book & Book Chapters

- **INERTIAL REDIRECTION OF THRUST FORCES FOR FLIGHT STABILIZATION**  
Demir A., Ankaralı M. M. , Dhyr J., Morgansen K., Daniel T., Cowan N.  
in: Adaptive Mobile Robotics, A. K. M. Azad,N. J. Cowan,M. O. Tokhi,G. S. Virk,R. D. Eastman, Editor, World Scientific Publishing , Singapore, pp.239-246, 2012
- **A DYNAMIC MODEL OF RUNNING WITH A HALF-CIRCULAR COMPLIANT LEG**  
Ankaralı M. M. , Saygıner E., Yazıcıoğlu Y., Saranlı A., Saranlı U.  
in: Adaptive Mobile Robotics, A. K. M. Azad,N. J. Cowan,M. O. Tokhi,G. S. Virk,R. D. Eastman, Editor, World Scientific Publishing , Singapore, pp.425-432, 2012
- **Analysis and control of a dissipative spring-mass hopper with torque actuation**  
Ankaralı M. M. , Saranlı U.  
in: Robotics: Science and Systems VI, Yoky Matsuoka,Hugh Durrant-Whyte,José Neira, Editor, The MIT Press, Cambridge (MA), USA , Massachusetts, pp.41-48, 2011
- **An Analytical Solution to the Stance Dynamics of Passive Spring-Loaded Inverted Pendulum with Damping**  
Ankaralı M. M. , Arslan Ö., Saranlı U.  
in: Mobile Robotics: Solutions and Challenges, O Tosun,H L Akin,M O Tokhi,G S Virk, Editor, World Scientific Publishing , Singapore, pp.693-700, 2009

## Refereed Congress / Symposium Publications in Proceedings

- **Variability in Locomotor Dynamics Reveals the Critical Role of Feedback in Task Control**  
Uyanık I., Sefati S., Stamper S. A. , Cho K., Ankaralı M. M. , Fortune E. S. , Cowan N. J.  
Annual Meeting of the Society-for-Integrative-and-Comparative-Biology (SICB), Texas, United States Of America, 3 - 07 January 2020, vol.60
- **28VDC Askeri Baradan Beslenen Yüksek Kazançlı 700VDC Çıkışlı ve Çıkışı Endüktörsüz Tam Köprü Kondansatör Şarjörünün Modellenmesi ve Benzetimi**  
Candan M. Y. , Kavak H., Ankaralı M. M.  
Ulusal Savunma Uygulamaları Modelleme ve Simülasyon Konferansı, Ankara, Turkey, 19 - 20 November 2019
- **Feedback motion planning for a dynamic car model via random sequential composition**  
Özcan M., Ankaralı M. M.  
2019 IEEE International Conference on Systems, Man and Cybernetics, SMC 2019, Bari, Italy, 6 - 09 October 2019, pp.4239-4244
- **Design of Programmable, High-Fidelity Haptic Paddle**  
Sızlayan S. Y. , ANKARALI M. M.  
2019 International Aegean Conference on Electrical Machines and Power Electronics, ACEMP 2019 and 2019 International Conference on Optimization of Electrical and Electronic Equipment, OPTIM 2019, İstanbul, Turkey, 27 - 29 August 2019, pp.540-546
- **RG-Trees: Trajectory-Free Feedback Motion Planning Using Sparse Random Reference Governor Trees**  
GÖLBOL F., ANKARALI M. M. , SARANLI A.  
25th IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Madrid, Spain, 1 - 05 October 2018, pp.6506-6511
- **Tork ile Harekete Geçen Tek Bacaklı Dağıtıcı Yaylı Kütle Modelinin Kontrolü**  
Sever İ., Ankaralı M. M.  
SAVTEK Savunma Teknolojileri Kongresi, Ankara, Turkey, 27 - 28 June 2018, pp.207-212
- **Optimization of physical parameters of an underactuated quadrupedal robot Dört bacakli eksik tahrikli bir robotun fiziksel parametrelerinin optimizasyonu**  
KARAGÖZ O. K. , ANKARALI M. M.  
26th IEEE Signal Processing and Communications Applications Conference, SIU 2018, İzmir, Turkey, 2 - 05 May 2018, pp.1-4
- **Ritmik metastabil robotik sistemler için verigüdümlü ortalama ilk geçiş zamanı metriği**  
Demir J., Ankaralı M. M.

Türkiye Robotbilim Konferansı Programı, İstanbul, Turkey, 12 - 14 April 2018, pp.85-91

- **Lineer Bir Sistemin Eş Zamanlı Sistem Belirleme ve Durum Kestirimi**

Gölbol F., Ankaralı M. M. , Saranlı A.

Türkiye Robotbilim Konferansı Programı, İstanbul, Turkey, 12 - 14 April 2018, pp.243-244

- **Dokunsal Uygulamalarda Düşük Çözünürlüklü Döner Enkoderin Jiroskopa Entegrasyonu**

Sızlayan S. Y. , Ankaralı M. M.

Türkiye Robotbilim Konferansı Programı, İstanbul, Turkey, 12 - 14 April 2018, pp.182-187

- **Using noisy work loops to identify the phase-dependent stiffness and damping of muscle in lampreys**

Tytell E. D. , Carr J. A. , Danos N., Cowan N. J. , Ankaralı M. M.

Annual Meeting of the Society-for-Integrative-and-Comparative-Biology (SICB), San-Francisco, Costa Rica, 3 - 07 January 2018, vol.58

- **İnsansız Sualtı Aracının ROS Kullanılarak Gazebo Simülöründe Kontrolü**

Sızlayan S. Y. , Ege E., Ankaralı M. M.

Ulusal Savunma Uygulamaları Modelleme ve Simülasyon Konferansı, Ankara, Turkey, 21 - 23 November 2017

- **Complementary roles of spatial- and timing-based control during rhythmic arm movements**

Nickl R., Ankaralı M. M. , Cowan N.

Society for Neuroscience, District-Of-Columbia, United States Of America, 11 - 15 November 2017

- **Noisy work loops: A new technique for understanding how muscle intrinsic properties contribute to the non-steady dynamics of rhythmic movements**

Carr J., Ankaralı M. M. , Nicole D., Cowan N., Tytell E.

INTEGRATIVE AND COMPARATIVE BIOLOGY, Louisiana, United States Of America, 4 - 08 January 2017

- **Modeling Rhythmic Biological Behaviors Using Limited Data**

Ankaralı M. M. , Nicole D., Tytell E., Cowan N.

Siam Conference On The Life Sciences, Massachusetts, United States Of America, 11 - 15 July 2016

- **Parametric Identification of Hybrid Linear-Time-Periodic Systems**

Uyanık İ., SARANLI U., Morgul O., Aukarah M. M.

6th IFAC Symposium on System Structure and Control (SSSC), İstanbul, Turkey, 22 - 24 June 2016, vol.49, pp.7-12

- **How lamprey muscle responds to perturbations during rhythmic motions: Phase-dependent system identification via harmonic transfer functions**

Nicole D., Wagenbach C., Ankaralı M. M. , Cowan N., Tytell E.

INTEGRATIVE AND COMPARATIVE BIOLOGY, California, United States Of America, 3 - 07 January 2016, vol.56, pp.275

- **Time As A Sensorimotor Control Problem: System Identification Of Human Auditory-motor Entrainment**

Samson E., Ankaralı M. M. , Nickl R., Cowan N.

Society For Neuroscience, Michigan, United States Of America, 17 - 21 October 2015

- **Toward Data-Driven Models of Legged Locomotion using Harmonic Transfer Functions**

Uyanık İ., Ankaralı M. M. , Cowan N. J. , Morgul O., SARANLI U.

International Conference on Advanced Robotics (ICAR), İstanbul, Turkey, 27 - 31 July 2015, pp.357-362

- **Sensory Weighting in a Rhythmic Ball Bouncing Task**

Nickl R., Ankaralı M. M. , Cowan N.

Dynamic Walking 2015, Ohio, United States Of America, 21 - 24 July 2015

- **Identifying Stability Properties of a Hybrid Spring–Mass–Damper via Piecewise LTI Approximation and Harmonic Transfer Functions**

Uyanık İ., Ankaralı M. M. , Cowan N., Morgül Ö., Saranlı U.

Dynamic Walking 2015, Zürich, Switzerland, 21 - 24 July 2015

- **Independent estimation of input and measurement delays for a hybrid vertical spring-mass-damper via harmonic transfer functions**

Uyanık İ., Ankaralı M. M. , Cowan N. J. , Saranlı U., Morgül Ö., Özbay H.

12th IFAC Workshop on Time Delay Systems, TDS 2015, Michigan, United States Of America, 28 - 30 June 2015, vol.28, pp.298-303

- **System Identification of Rhythmic Hybrid Dynamical Systems via Discrete Time Harmonic Transfer Functions**

Ankaralı M. M. , Cowan N. J.

53rd IEEE Annual Conference on Decision and Control (CDC), Los-Angeles, Chile, 15 - 17 December 2014, pp.1017-1022

- **System Identification of Legged Locomotion via Harmonic Transfer Functions and Piecewise LTI Approximation**

Uyanık İ., Ankaralı M. M. , Cowan N., Morgül Ö., Saranlı U.

Dynamic Walking 2014, Zürich, Switzerland, 10 - 13 June 2014

- **Fitting low-order transfer function models to messy biological data**

Ankaralı M. M. , Madhav M., Sefati S., Cowan N.

AMS Spring Eastern Sectional Meeting, Maryland, United States Of America, 29 - 30 March 2014, pp.1

- **TD-SLIP: A better predictive model for human running**

Ankaralı M. M. , Cowan N., Saranlı U.

Dynamic Walking 2012, Florida, United States Of America, 21 - 24 May 2012

- **Control of Underactuated Planar Hexapedal Pronking Through a Dynamically Embedded SLIP Monopod**

Ankaralı M. M. , Saranlı U., SARANLI A.

IEEE International Conference on Robotics and Automation (ICRA), Alaska, United States Of America, 3 - 08 May 2010, pp.4721-4727

## Supported Projects

Ankaralı M. M. , Saranlı A., TUBITAK Project, Rastgele Sıralı Kompozisyon Yoluyla Bir İnsansız Su Üstü Aracının Geri Beslemeli Hareket Planlaması, 2018 - 2021

ANKARALI M. M. , KARAGÖZ O. K. , SIZLAYAN S. Y. , Project Supported by Higher Education Institutions, Algı-motor entegrasyonunu araştırmak için düşük maliyetli, ancak yüksek bant genişliğine sahip bir deney sistemi geliştirilmesi, 2018 - 2020

ANKARALI M. M. , GÖLBOL F., SIZLAYAN S. Y. , Project Supported by Higher Education Institutions, Ritmik Bir Davranışının Sistem Tanımlaması ve Analizi, 2018 - 2019

## Contractual Researches

Saranlı U., Ankaralı M. M. , Orta Doğu Teknik Üniversitesi Teknoloji Transfer Ofisi, Kablo tahrikli robotlarda hassas konum ve kuvvet kontrolü, 2018 - 2019

## Activities in Scientific Journals

Turkish Journal Of Electrical Engineering And Computer Sciences, Editor, 2018 - 2020

## Scientific Refereeing

TUBITAK Project, 1501 - Industry R & D Projects Support Program, STROTECH OTOMASYON YAZILIM TİCARET LTD. ŞTİ., Turkey, February 2020

TUBITAK Project, 2209-B - Sanayiye Yönelik Lisans Araştırma Projeleri Destekleme Programı, Turkey, December 2019

TUBITAK Project, 2209-A - Üniversite Öğrencileri Araştırma Projeleri Destekleme Programı, Turkey, July 2019

TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, Journal Indexed in SCİ-E, June 2019

TUBITAK Project, 1507 - TÜBİTAK SME R&D Start Support Program, EGE DİNAMİK MÜHENDİSLİK

ELEKTROMEKANİK ENERJİ VE ROBOT SİSTEMLERİ SANAYİ VE TİCARET ANONİM ŞİRKETİ, Turkey, June 2019

Bioinspiration & Biomimetics, Journal Indexed in SCİ-E, May 2019

TUBITAK Project, 2209-B - Sanayiye Yönelik Lisans Araştırma Projeleri Destekleme Programı, Turkey, April 2019

TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, Journal Indexed in SCİ-E, July 2018

Transactions Of The Institute Of Measurement And Control, Journal Indexed in SCIE, July 2018

TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, Journal Indexed in SCIE, April 2018

TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, Journal Indexed in SCIE, March 2018

## **Scientific Consultations**

Milvus Teknoloji Mekatronik Müh. San. Tic. Ltd. Şti. , Scientific Consultancy, Middle East Technical University, Faculty Of Engineering, Department Of Electrical And Electronics Engineering, Turkey, 2018 - 2019

## **Invited Congress and Symposium Activities**

2018 IEEE/RSJ International Conference on Intelligent Robots and Systems, Working Group, Madrid, Spain, 2018

## **Citations**

Total Citations (WOS):222

h-index (WOS):6

## **Awards**

Ankaralı M. M. , Akgün S. A. , Özdemir O., Açıkgöz U., 2242 Öncelikli Alanlarda Üniversite Öğrencileri Proje Yarışması - Ankara Bölge (Ülke Çapında Toplam 6 Bölge), Tübitak Bideb, June 2019

Ankaralı M. M. , Tuncer B., Öztürk A. S. , Geçimli U. C. , 2242 Öncelikli Alanlarda Üniversite Öğrencileri Proje Yarışması - Samsun Bölge (Ülke Çapında Toplam 6 Bölge), Tübitak Bideb, October 2018

Ankaralı M. M. , Üzel D., Özdemir O., Kılınç M., 2242 Öncelikli Alanlarda Üniversite Öğrencileri Proje Yarışması, Samsun Bölge (Ülke Çapında Toplam 6 Bölge), Tübitak Bideb, October 2018

Ankaralı M. M. , Siebel Scholars Class of 2015, Siebel Foundation, August 2015