

Doç. Dr. UĞUR TÜMERDEM

Kişisel Bilgiler

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Uluslararası Araştırmacı ID'leri

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Biyografi

Ugur Tumerdem received his B.Sc. degree in Mechatronics from Sabanci University, Istanbul in 2005, his M.Sc. and Ph.D. degrees in Integrated Design Engineering from Keio University, Tokyo in 2007 and 2010 respectively. He worked as a Postdoctoral Fellow at IBM Research - Tokyo. Since 2012, he is a faculty member in the Department of Mechanical Engineering at Marmara University, Istanbul. His current research interests include haptics in robotic surgery systems, with a focus on force estimation algorithms, haptic teleoperation architectures and novel mechanism design for haptic interfaces and surgical tools.

Eğitim Bilgileri

Doktora, Keio Üniversitesi, Graduate School Of Science And Technology, Japonya 2007 - 2010

Yüksek Lisans, Keio Üniversitesi, Graduate School Of Science And Technology, Japonya 2005 - 2007

Lisans, Sabancı Üniversitesi, Türkiye 2001 - 2005

Yabancı Diller

İngilizce, C2 Ustalık

Yaptığı Tezler

Doktora, High performance haptic teleoperation and collaboration over networks, Keio Üniversitesi, Graduate School Of Science And Technology, 2010

Yüksek Lisans, Acceleration Consensus for Networked Robotics, Keio University, 2007

Araştırma Alanları

Makina Teorisi ve Dinamiği, Sistem Dinamiği ve Kontrolü, Mekanizmalar, Robotik, Mekatronik, Dinamik Sistemlerin Modellenmesi ve Benzetimi

Akademik Unvanlar / Görevler

Doç. Dr., Marmara Üniversitesi, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, 2022 - Devam Ediyor
Dr. Öğr. Üyesi, Marmara Üniversitesi, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, 2012 - Devam Ediyor

Yönetilen Tezler

Tümerdem U., Development of a learning based trajectory tracking controller for autonomous vehicles, Yüksek Lisans, H.ŞENER(Öğrenci), 2022
TÜMERDEM U., Development of a sensorless haptic teleoperation system for robotic minimally invasive surgery, Yüksek Lisans, N.Yılmaz(Öğrenci), 2019
TÜMERDEM U., Development of a novel 4-DOF wrist-gripper mechanism for robotic minimally invasive surgery, Yüksek Lisans, M.Bazman(Öğrenci), 2019

SCI, SSCI ve AHCI İndekslerine Giren Dergilerde Yayınlanan Makaleler

- I. **Enhancing robotic telesurgery with sensorless haptic feedback**
Yılmaz N., Burkhart B., Deguet A., Kazanzides P., TÜMERDEM U.
International Journal of Computer Assisted Radiology and Surgery, cilt.19, sa.6, ss.1147-1155, 2024 (SCI-Expanded)
- II. **Admittance Switching for Stability and Transparency in Human-Robot Collaborative Microsurgery**
Banks B., Salehizadeh M., Munawar A., Taylor R. H., TÜMERDEM U.
IEEE Robotics and Automation Letters, cilt.9, sa.2, ss.1891-1898, 2024 (SCI-Expanded)
- III. **Sensorless Transparency Optimized Haptic Teleoperation on the da Vinci Research Kit**
Yılmaz N., Burkhart B., Deguet A., Kazanzides P., TÜMERDEM U.
IEEE Robotics and Automation Letters, cilt.9, sa.2, ss.971-978, 2024 (SCI-Expanded)
- IV. **An Articulated Robotic Forceps Design With a Parallel Wrist-Gripper Mechanism and Parasitic Motion Compensation**
Bazman M., Yılmaz N., Tümerdem U.
JOURNAL OF MECHANICAL DESIGN - TRANSACTIONS OF THE ASME, cilt.144, sa.06, ss.1-12, 2022 (SCI-Expanded)
- V. **Transfer of learned dynamics between different surgical robots and operative configurations**
Yılmaz N., Zhang J., Kazanzides P., TÜMERDEM U.
INTERNATIONAL JOURNAL OF COMPUTER ASSISTED RADIOLOGY AND SURGERY, cilt.17, sa.5, ss.903-910, 2022 (SCI-Expanded)
- VI. **A unifying framework for transparency optimized controller design in multilateral teleoperation with time delays**
TÜMERDEM U., Yılmaz N.
CONTROL ENGINEERING PRACTICE, cilt.117, 2021 (SCI-Expanded)
- VII. **Three-channel control architecture for multilateral teleoperation under time delay**
TÜMERDEM U.
TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, cilt.27, sa.1, ss.120-138, 2019 (SCI-Expanded)
- VIII. **Multilateral teleoperation under asymmetric time delays: L-2 stability and robustness**
Tümerdem U.
INTERNATIONAL JOURNAL OF ADVANCED ROBOTIC SYSTEMS, cilt.14, 2017 (SCI-Expanded)

Diğer Dergilerde Yayınlanan Makaleler

- I. **A Study on the L2 Stability and Transparency of Three Channel Control Architectures in Bilateral Teleoperation under Time Delays**

Tümerdem U.

International Journal of Advances in Engineering and Pure Sciences, cilt.33, sa.3, ss.455-466, 2021 (Hakemli Dergi)

II. Delay-Independent L2 Stability of Four-Channel Bilateral Teleoperators with Damping Injection

Tümerdem U., Ohnishi K.

IEEE Transaction on Industry Applications, cilt.130, sa.8, ss.953-964, 2010 (Hakemli Dergi)

III. Asymmetric Multilateral Teleoperation through Scaled Consensus Reaching on Graphs

Tümerdem U., Shimono T., Ohnishi K.

IEEE Transactions on Industry Applications, cilt.129, sa.10, ss.972-980, 2009 (Scopus)

Hakemli Kongre / Sempozyum Bildiri Kitaplarında Yer Alan Yayınlar

I. Learning Contact for Haptic Feedback: Switching X-lateral Teleoperators

Yılmaz N., TÜMERDEM U.

2024 IEEE International Conference on Robotics and Automation, ICRA 2024, Yokohama, Japonya, 13 - 17 Mayıs 2024, ss.1092-1098

II. Learning Based Estimation of 7 DOF Instrument and Grasping Forces on the Da Vinci Research Kit

Zhang J., Yılmaz N., Tümerdem U., Kazanzides P.

International Symposium on Medical Robotics, Georgia, Amerika Birleşik Devletleri, 13 - 15 Nisan 2022, ss.1-7

III. Robot Force Estimation with Learned Intraoperative Correction

Wu J. Y., Yılmaz N., TÜMERDEM U., Kazanzides P.

International Symposium on Medical Robotics (ISMR), Georgia, Amerika Birleşik Devletleri, 17 - 19 Kasım 2021

IV. Neural Network based Inverse Dynamics Identification and External Force Estimation on the da Vinci Research Kit

Yılmaz N., Wu J. Y., Kazanzides P., TÜMERDEM U.

IEEE International Conference on Robotics and Automation (ICRA), ELECTR NETWORK, 31 Mayıs - 15 Haziran 2020, ss.1387-1393

V. 6-Axis Hybrid Sensing and Estimation of Tip Forces/Torques on a Hyper-Redundant Robotic Surgical Instrument

Yılmaz N., Bazman M., Alassi A., Gur B., TÜMERDEM U.

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Macau, Çin, 4 - 08 Kasım 2019, ss.2990-2997

VI. External Force/Torque Estimation on a Dexterous Parallel Robotic Surgical Instrument Wrist

Yılmaz N., Bazman M., TÜMERDEM U.

25th IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Madrid, İspanya, 1 - 05 Ekim 2018, ss.4396-4403

VII. Development and kinematic analysis of a redundant, modular and backdrivable laparoscopic surgery robot

Alassi A., Yılmaz N., Bazman M., GÜR M. B., TÜMERDEM U.

2018 IEEE/ASME International Conference on Advanced Intelligent Mechatronics, AIM 2018, Auckland, Yeni Zelanda, 9 - 12 Temmuz 2018, cilt.2018-July, ss.213-219

VIII. Development and Kinematic Analysis of a Redundant, Modular and Backdrivable Laparoscopic Surgery Robot

Alassi A., Yılmaz N., Bazman M., Gur B., TÜMERDEM U.

IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM), Auckland, Yeni Zelanda, 9 - 12 Temmuz 2018, ss.213-219

IX. Kinematics and Tracking Control of a Four Axis Antenna for Satcom on the Move

Hancioglu O. K., Celik M., Tümerdem U.

8th International Power Electronics Conference (IPEC-Niigata ECCE Asia), Niigata, Japonya, 20 - 24 Mayıs 2018, ss.1680-1686

X. Kinematics and Tracking Control of a 4 Axis Antenna for Satcom on the Move

Hancıođlu O. K., elik M., TMERDEM U.

International Power Electronics Conference, 20 - 24 Mayıs 2018

- XI. **Dexterous and Back-Drivable Parallel Robotic Forceps Wrist for Robotic Surgery**
Bazman M., Yilmaz N., Tmerdem U.
15th IEEE International Workshop on Advanced Motion Control (AMC), Tokyo, Japonya, 9 - 11 Mart 2018, ss.153-159
- XII. **L-2 Stable Transparency Optimized Two Channel Teleoperation under Time Delay**
Tmerdem U., Demir M.
41st Annual Conference of the IEEE-Industrial-Electronics-Society (IECON), Yokohama, Japonya, 9 - 12 Kasım 2015, ss.1313-1320
- XIII. **L2 stability analysis of four channel teleoperation and experiments under varying time delay**
Tmerdem U., Ohnishi K.
IEEE AMC, Niigata, Japonya, 21 - 24 Mart 2010, ss.643-648
- XIV. **Delay independent L2 stable multilateral teleoperation with damping injection**
Tmerdem U., Ohnishi K.
IEEE ICIT, Vina-Del-Mar, Őili, 14 - 17 Mart 2010
- XV. **Robust Four Channel Teleoperation under Time Delay by Damping Injection**
Tmerdem U., Ohnishi K.
2009 IEEE INTERNATIONAL CONFERENCE ON MECHATRONICS, VOLS 1 AND 2, Malaga, İspanya, 14 - 17 Nisan 2009, ss.357-362
- XVI. **Multi-robot Teleoperation under Dynamically Changing Network Topology**
Tmerdem U., Ohnishi K.
2009 IEEE INTERNATIONAL CONFERENCE ON INDUSTRIAL TECHNOLOGY, VOLS 1-3, Melbourne, Avustralya, 10 - 13 Őubat 2009, ss.780-785
- XVII. **Micro-Macro Multilateral Teleoperation through Scaled Information Flow**
Tmerdem U., Ohnishi K., Shimono T.
IECON 2008: 34TH ANNUAL CONFERENCE OF THE IEEE INDUSTRIAL ELECTRONICS SOCIETY, VOLS 1-5, PROCEEDINGS, Florida, Amerika BirleŐik Devletleri, 10 - 13 Kasım 2008, ss.2816-2821
- XVIII. **Haptic Consensus in Multilateral Teleoperation**
Tmerdem U., Ohnishi K.
2008 IEEE INTERNATIONAL SYMPOSIUM ON INDUSTRIAL ELECTRONICS, VOLS 1-5, London, BirleŐik Krallık, 30 Haziran - 02 Temmuz 2008, ss.1652-1657
- XIX. **Acceleration consensus for networked motion control of telerobots**
Tmerdem U., Ohnishi K.
AMC 'xx08: 10TH INTERNATIONAL WORKSHOP ON ADVANCED MOTION CONTROL, VOLS 1 AND 2, PROCEEDINGS, Trento, İtalya, 26 - 28 Mart 2008, ss.318-323
- XX. **Scaled Haptic Consensus and Multilateral Teleoperation**
TMERDEM U., Shimono T., Ohnishi K.
Technical Meeting on Industrial Instrumentation and Control, Japonya, 01 Mart 2008
- XXI. **Haptic consensus in bilateral teleoperation**
Tmerdem U., Ohnishi K.
2007 IEEE INTERNATIONAL CONFERENCE ON MECHATRONICS, Kumamoto, Japonya, 8 - 10 Mayıs 2007, ss.154-159
- XXII. **Serbest Őekilli Nesnelerin Scara Robotun Grme Tabanlı Denetimi İle Maniplasyonu**
Tmerdem U.
TOK 2005, İstanbul, Trkiye, 2 - 05 Haziran 2005, ss.1-7

Desteklenen Projeler

Tmerdem U., GR M. B., TBİTAK Projesi, Minimal İnvazif Cerrahi iin Kuvvet Geri Beslemeli Robotik Forseps Tasarımı

ve Geliştirilmesi, 2016 - 2018

Tümerdem U., Yükseköğretim Kurumları Destekli Proje, Birden Fazla Operatörle İnternet Üzerinden Minimal İnvazif Robotik Cerrahi için Haptik Kontrol Sistem, 2013 - 2015

Metrikler

Yayın: 33

Atıf (WoS): 29

Atıf (Scopus): 73

H-İndeks (WoS): 3

H-İndeks (Scopus): 6

Kongre ve Sempozyum Katılımı Faaliyetleri

Robotics, Genetics and Criminal Law, Davetli Konuşmacı, İstanbul, Türkiye, 2018

Ödüller

Zhang J., Yılmaz N., Tümerdem U., Kazanzides P., ISMR 2022 Best paper award, Ismr, Nisan 2022

Akademi Dışı Deneyim

IBM RESEARCH - TOKYO

Şirket, IBM Research