Asst. Prof. MEHMET MERT İLMAN

Personal Information

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International Researcher IDs
ScholarID: ZAkPAI4AAAAJ
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Biography

I have been an assistant professor of Mechanical Engineering at MCBU since 2024. After completing my Ph.D. at DEU on active vibration control of composite manipulators, I pursued postdoctoral research in soft robotics at Cornell's Organic Robotics Lab. My research bridges soft robotic systems, machine intelligence, and simulation, driven by a motivation to create adaptive and efficient technologies. I also serve as a journal reviewer and am a member of the Turkish Machine Theory Association.

Education

Doctorate, Dokuz Eylul University, Fen Bilimleri Enstitüsü, Turkey 2017 - 2022
Postgraduate, Dokuz Eylul University, Fen Bilimleri Enstitüsü, Turkey 2015 - 2017
Undergraduate, Dokuz Eylul University, Mühendislik Fakültesi, Turkey 2010 - 2015

Foreign Languages

English, C1 Advanced

Dissertations

Doctorate, Active vibration control and modeling of flexible manipulators with trapezoidal velocity profile actuations, Dokuz Eylul University, Fen Bilimleri Enstitüsü, 2022

Research Areas

Avesis Research Areas: Machine Theory and Dynamics
WoS Research Areas: Robotics
Scopus Research Areas: Mechanical Engineering

Academic Positions

Assistant Professor, Manisa Celal Bayar University, Hasan Ferdi Turgutlu Teknoloji Fakültesi, Makine Mühendisliği, 2024 - Present

Researcher, Cornell University, 2022 - 2024

Research Assistant, Manisa Celal Bayar University, Hasan Ferdi Turgutlu Teknoloji Fakültesi, Makine Mühendisliği, 2017 - 2024

Courses

Undergraduate

Mühendislikte Teknik İngilizce, Undergraduate, 2024 - 2025

Dinamik, Undergraduate, 2024 - 2025

Makine Dinamiği, Undergraduate, 2024 - 2025

Statik, Undergraduate, 2024 - 2025

Makine Elemanları, Undergraduate, 2024 - 2025

Mechanical Synthesis, Undergraduate, 2022 - 2023

Makine Dinamiği, Undergraduate, 2021 - 2022

Articles

I. **Sensor fusion of touch & vision in soft manipulators for fruit picking**
Mishra A. K., Ramaswami A., Shree V., Ilman M. M., Ly K. D., Pritts M. P., Shepherd R. F.
NATURE COMMUNICATIONS, vol.17, no.1, 2026 (SCI-Expanded, Scopus)

II. **Loss of conductance between mesophyll symplasm and intercellular air spaces explains nonstomatal control of transpiration**
Jain P., Sen S., Rockwell F. E., Twohey R. J., Huber A. E., Desai S. A., Wu I., De Swaef T., İLMAN M. M., Studer A. J., et al.
Proceedings of the National Academy of Sciences of the United States of America, vol.122, no.47, 2025 (SCI-Expanded, Scopus)

III. **In situ foliar augmentation of multiple species for optical phenotyping and bioengineering using soft robotics**
Ilman M. M., Huber A., Mishra A. K., Sen S., Wang F., Lin T., Jander G., Stroock A. D., Shepherd R. F.
SCIENCE ROBOTICS, vol.10, no.103, 2025 (SCI-Expanded, Scopus)

IV. **Transdisciplinary Collaborations for Advancing Sustainable and Resilient Agricultural Systems**
Bacheva V., Madison I., Baldwin M., Baker J., Beilstein M., Call D. F., Deaver J. A., Efimenko K., Genzer J., Grieger K., et al.
Global Change Biology, vol.31, no.4, 2025 (SCI-Expanded, Scopus)

V. **System Identification And Vibration Analysis Of Rotating Beam With Lattice Structures**
ÇAŞKA S., DOKUZ M. E., AYDIN M., İLMAN M. M., YAVUZ Ş.
International Journal of 3D Printing Technologies and Digital Industry, vol.7, no.2, pp.322-327, 2023 (TRDizin)

VI. **Generalized Input Preshaping Vibration Control Approach for Multi-Link Flexible Manipulators using Machine Intelligence***
Ilman M. M., Yavuz Ş., Taser P. Y.
MECHATRONICS, vol.82, 2022 (SCI-Expanded, Scopus)

VII. **Hybrid vibration control of an industrial CFRP composite robot-manipulator system based on reduced order model**
İLMAN M. M., YAVUZ Ş., Karagülle H., UYSAL A.
Simulation Modelling Practice and Theory, vol.115, 2022 (SCI-Expanded, Scopus)

VIII. **Modeling approach and analysis time comparison of single-link flexible steel- and epoxy-glass/carbon-fiber composite manipulators**
YAVUZ Ş., İLMAN M. M., Binici B.

Structures, vol.26, pp.396-405, 2020 (SCI-Expanded, Scopus)

IX. **Modified reduced-order modeling of a flexible robot-manipulator and model-associative vibration control implementation**
YAVUZ Ş., İLMAN M. M.
Extreme Mechanics Letters, vol.37, 2020 (SCI-Expanded, Scopus)

X. **Stress and rigidity comparison and improved vibration control of flexible carbon-fiber and epoxy-glass composite manipulators under end-point load**
YAVUZ Ş., İLMAN M. M.
Materials Research Express, vol.6, no.3, 2019 (SCI-Expanded, Scopus)

Books

I. **COVID-19 Optimization-Based Vibration Controller for a Flexible Manipulator**
İLMAN M. M., ARIKUŞU Y. S.
in: Trends, Paradigms, and Advances in Mechatronics Engineering, Mohamed Arezki Mellal, Editor, IGI GLOBAL, pp.93-109, 2023

II. **Design Optimization Application for a Flexible Robot Manipulator**
İLMAN M. M., YAVUZ Ş., AKGÖL D.
in: Trends, Paradigms, and Advances in Mechatronics Engineering, Mohamed Arezki Mellal, Editor, IGI GLOBAL, pp.110-126, 2023

III. **Machine Learning and Optimization Applications for Soft Robotics**
İLMAN M. M., YILDIRIM TAŞER P.
in: Design and Control Advances in Robotics, Mellal Mohamed Arezk, Editor, IGI Global Scientific Publishing, pp.13-29, 2022

IV. **A Soft Robotic Gripper Material Study: Effects of CNT Mixing Methodologies**
İLMAN M. M., TAŞ H.
in: Design and Control Advances in Robotics, Mellal Mohamed Arezk, Editor, IGI Global Scientific Publishing, pp.60-73, 2022

Papers Presented at Peer-Reviewed Scientific Conferences

I. **Stretchable Piezoelectric Sensing for Slip Detection in Soft Robotic Grippers**
Ilman M. M., Sarı A., Yıldız Z., Koç M., Paralı L.
26th CISM IFToMM Symposium on Robot Design, Dynamics and Control (ROMANSY 2026), İzmir, Turkey, 14 - 17 September 2026, vol.218, pp.400-408, (Full Text)

II. **Ensuring Airtightness in FDM-Printed Soft Robots**
Özpay B., Demir A., Aydın M., Ilman M. M.
10th International Congress on 3D Printing (Additive Manufacturing) Technologies and Digital Industry (3D-PTC 2026), Trabzon, Turkey, 3 - 05 September 2026, (Unpublished)

III. **3B Yazdırılmış Monolitik Yumuşak Tutucu Simülasyonu**
Ilman M. M.
22. Ulusal Makina Teorisi Sempozyumu, Ankara, Turkey, 3 - 05 September 2025, pp.312-317, (Full Text)

IV. **Dynamic Stress Analysis of A Flexible Manipulator with Payloads**
YAVUZ Ş., İLMAN M. M.
4TH INTERNATIONAL CONFERENCE ON ADVANCES IN MECHANICAL ENGINEERING, 19 - 21 December 2018, (Full Text)

V. **Comparison of Numerical and Analytical Methods of 4-Degree-of-Freedom System's Passive Vibration Control**
İLMAN M. M., YAVUZ Ş., KARAGÜLLE H.

2nd International Students Science Congress, 4 - 05 May 2018, pp.177-184, (Full Text)

VI. **750 KG YÜK KAPASİTELİ İKİ KARDAN EKSENLİ KAYNAKKONUMLANDIRICI ROBOTUN DİNAMİK ANALİZ DEĞERLENDİRMESİ**
İLMAN M. M., KARAGÜLLE H., YAVUZ Ş.
18. Ulusal Makina Teorisi Sempozyumu, Trabzon, Turkey, 5 - 07 July 2017, pp.400-408, (Full Text)

Funded Projects

Ilman M. M., Shepherd R., Project Supported by Public Organizations in Other Countries, NSF CROPPS (DBI-2019674) – Buried and Above-Ground Soft Robotic Systems for Automation of Non-Invasive and In Situ Plant Observation, 2023 - 2024
Ilman M. M., Shepherd R., TUBITAK Project, 2219 - Yurt Dışı Doktora Sonrası Araştırma Burs Programı, Soft Robot Design and Control Using Machine Learning and Optimization Approaches, 2022 - 2024
Ilman M. M., Aydin M., Çaşka S., Güngör Çelik A., Project Supported by Higher Education Institutions, BAP Research Project, Hava Kaynaklı Bir Isı Pompası Sisteminin Tasarımı ve Performansının İleri Ekserji Analizi ile Değerlendirilmesi, 2022 - 2023
ÇOBAN ÖZKAN D., TAŞ H., İLMAN M. M., UZUN R. O., Project Supported by Higher Education Institutions, Çelik Malzemelerin Farklı Isıl İşlem Parametreleri İle Elde Edilen Mikro Yapılarının İncelenmesi, 2019 - 2020
TAŞ H., İLMAN M. M., ÇAŞKA S., ÇOBAN ÖZKAN D., AYDIN M., Project Supported by Higher Education Institutions, Makine ve İmalat Mühendisliği Bölümü Öğrencilerinin Üretim ve Kalite Kontrol Yeterlilik Düzeylerinin Geliştirilmesi, 2018 - 2019

Student Project

R & D Project, TÜBİTAK 2209-A – Systematic Characterization of Tendon-Driven Soft Actuators Using Rapid Prototyping, Manisa Celal Bayar University, Hasan Ferdi Turgutlu Teknoloji Fakültesi, Makine Mühendisliği, Turkey, 2026 - 2027
R & D Project, TÜBİTAK 2209-A – Design of a Feedback-Controlled Soft Robotic Gripper and Integration with a Robotic Arm, Manisa Celal Bayar University, Hasan Ferdi Turgutlu Teknoloji Fakültesi, Makine Mühendisliği, Turkey, 2026 - 2027

Metrics

Publication: 20

Scholarships

Center for Research on Programmable Plant Systems (CROPPS) Fellowship, Official Institutions of Foreign Countries, 2023 - 2024
TUBITAK 2219 International Postdoctoral Research Fellowship, TUBITAK, 2022 - 2023

Awards

Ilman M. M., Sarı A., Yıldız Z., Koç M., Paralı L., ROMANSY 2026 Silver Research Award (Joint Second Prize), Romansy 2026 Award Committee – 26Th Cism–Iftomm Symposium On Robot Design, Dynamics And Control, September 2026
Ilman M. M., The Second Place Prize in Workshop on Agricultural Robotics for a Sustainable Future, International Conference On Intelligent Robots And Systems (Iros), October 2023

Non Academic Experience

Non-profit Organisation, MIT Media Lab, MIT, Attendee for project of translating NASA educational resources into Turkish

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