

## **Assoc. Prof. EROL ŞAHİN**

### **Personal Information**

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### **International Researcher IDs**

ScholarID: a0-849gAAAAJ

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Publons / Web Of Science ResearcherID: B-1361-2016

ScopusID: 57189656417

Yoksis Researcher ID: 164803

### **Education Information**

Doctorate, Boston University, Cognitive And Neural Systems, United States Of America 1996 - 2000

Postgraduate, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, Turkey 1992 - 1994

Undergraduate, Ihsan Dogramaci Bilkent University, Faculty Of Engineering, Department Of Electrical And Electronics Engineering, Turkey 1987 - 1991

### **Foreign Languages**

English, C1 Advanced

### **Dissertations**

Doctorate, Visual object localization for mobile robots, Boston University, Cognitive And Neural Systems, 2000

Postgraduate, A New higher-order binary input neural unit : learning and generalizing effectively via using minimal number of monomials, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, 1994

### **Research Areas**

Computer Sciences, Artificial Intelligence, Computer Learning and Pattern Recognition, Neural Networks, Engineering and Technology

### **Academic Titles / Tasks**

Associate Professor, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, 2010 - Continues

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering,

2004 - 2010

Lecturer, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, 2002 - 2004

## Academic and Administrative Experience

Director of the Center, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, 2021 - Continues

## Advising Theses

Ankarali M. M., Şahin E., Distributed nonlinear model predictive formation control of quadrotor type UAVs in cluttered and dynamic environments, Postgraduate, M.SAMİ(Student), 2023

ŞAHİN E., Distributed area partitioning for multi-robot coverage, Postgraduate, B.HOCAOĞLU(Student), 2022

ŞAHİN E., Generation and analysis of breathing as an hri behavior on a cobot, Postgraduate, A.NURİ(Student), 2022

Turgut A. E., Şahin E., DEVELOPMENT OF AN EXTENSIBLE HETEROGENEOUS SWARM ROBOT PLATFORM, Postgraduate, C.BİLAŁOĞLU(Student), 2022

ŞAHİN E., Trust attribution in collaborative robots: an experimental investigation of non-verbal cues in a virtual human-robot interaction setting, Postgraduate, A.MERİÇ(Student), 2021

Şahin E., Strike me and get marked: the conceptual, analytical and simulation model of an add-on module to deter quadrotor strikes, Postgraduate, O.ŞENYAYLA(Student), 2020

Kalkan S., Şahin E., ALET (Automated Labeling of Equipment and Tools): A Dataset for Tool Detection and Human Worker Safety Detection, Postgraduate, F.CAN(Student), 2020

ŞAHİN E., KALKAN S., A grounded and contextualized web of concepts on a humanoid robot, Doctorate, H.ÇELİKKANAT(Student), 2015

ŞAHİN E., Perception, Learning and Use of Tool Affordances on Humanoid Robots, Postgraduate, Y.ÇALIŞKAN(Student), 2013

ŞAHİN E., KALKAN S., Formation of adjective, noun and verb concepts through affordances, Postgraduate, O.YÜRÜTEN(Student), 2012

ŞAHİN E., A developmental grasp learning scheme for humanoid robots, Postgraduate, A.KAAN(Student), 2012

ŞAHİN E., A probabilistic geometric model of self-organized aggregation in swarm robotic systems, Doctorate, L.BAYINDIR(Student), 2012

KALKAN S., ŞAHİN E., Emergence of verb and object concepts through learning affordances, Postgraduate, N.DAĞ(Student), 2010

ŞAHİN E., A developmental framework for learning affordances, Doctorate, E.UĞUR(Student), 2010

ŞAHİN E., Action recognition through action generation, Postgraduate, B.AKGÜN(Student), 2010

ŞAHİN E., Implementation of a closed-loop action generation system on a humanoid robot through learning by demonstration, Postgraduate, D.TUNAOĞLU(Student), 2010

KALKAN S., ŞAHİN E., Function and appearance-based emergence of object concepts through affordances, Postgraduate, İ.ATIL(Student), 2010

ŞAHİN E., To flock or not to flock: Pros and cons of flocking in long-range "migration" of mobile robot swarms, Postgraduate, F.GÖKÇE(Student), 2008

ŞAHİN E., Self-organized flocking with a mobile robot swarm, Doctorate, A.EMRE(Student), 2008

ŞAHİN E., Control of a mobile robot swarm via informed robots, Postgraduate, H.ÇELİKKANAT(Student), 2008

ŞAHİN E., Using learned affordances for robotic behavior development, Postgraduate, M.REMZİ(Student), 2007

ŞAHİN E., Robot planing based on learned affordances, Postgraduate, M.Çakmak(Student), 2007

ŞAHİN E., Robot planning based on learned affordances, Postgraduate, M.ÇAKMAK(Student), 2007

ŞAHİN E., Direct perception of traversibility affordance on range images through learning on a mobile robot, Postgraduate, E.UĞUR(Student), 2006

ŞAHİN E., Towards learning affordances: Detection of relevant features and characteristics for reachability,

Postgraduate, S.EREN(Student), 2006

ŞAHİN E., A systematic study of probabilistic aggregation strategies in swarm robotic systems, Postgraduate, O.SOYSAL(Student), 2005

ŞAHİN E., Evolving aggregation behaviors for swarm robotic systems: A systematic case study, Postgraduate, E.BAHÇECİ(Student), 2005

ŞAHİN E., Evolving aggregation behaviors for swarm robotics systems: a systematic case study, Postgraduate, E.Bahçeci(Student), 2005

## Research Infrastructure Information

Şahin E., Koku A. B., Ankaralı M. M., Akbaş E., Cinbiş R. G., Kalkan S., Keysan O., Turgut A. E., Yazıcıoğlu Y., Saranlı U., et al., CENTER FOR ROBOTICS AND ARTIFICIAL INTELLIGENCE, January 2021

## Designed Programs

Ankaralı M. M., Şahin E., Turgut A. E., Koku A. B., Saranlı U., Saranlı A., Keysan O., Yazıcıoğlu Y., Akbaş E., Ulusoy İ., et al., Doctorate, Robotik Lisansüstü Programı, 2021 - Continues

## Published journal articles indexed by SCI, SSCI, and AHCI

### I. Predictive search model of flocking for quadcopter swarm in the presence of static and dynamic obstacles

ÖNÜR G., TURGUT A. E., ŞAHİN E.

Swarm Intelligence, 2024 (SCI-Expanded)

### II. Fraud detection from paper texture using Siamese networks

Emiroğlu E. E., ŞAHİN E., Vural F. T. Y.

Signal, Image and Video Processing, vol.17, no.7, pp.3369-3376, 2023 (SCI-Expanded)

### III. Reinforcement learning-based aggregation for robot swarms

Sadeghi Amjadi A., BİLALOĞLU C., TURGUT A. E., Na S., ŞAHİN E., Krajnik T., Arvin F.

Adaptive Behavior, 2023 (SCI-Expanded)

## Articles Published in Other Journals

### I. A Minimally Invasive Approach Towards "Ecosystem Hacking" With Honeybees

Stefanec M., Hofstadler D. N., Krajnik T., TURGUT A. E., ALEMDAR H., Lennox B., ŞAHİN E., Arvin F., Schmickl T. FRONTIERS IN ROBOTICS AND AI, vol.9, 2022 (ESCI)

## Books & Book Chapters

### I. Swarm Robotics

Şahin E., Girgin S., Bayindir L., Turgut A. E.

in: Swarm Intelligence Introduction and Applications, Blum C., Merkle D., Editor, Springer, London/Berlin , Berlin, pp.87-100, 2008

### II. Swarm robotics: From sources of inspiration to domains of application

ŞAHİN E.

in: SWARM ROBOTICS, Sahin, E; Spears, WM, Editor, Springer-Verlag , pp.10-20, 2005

## **Refereed Congress / Symposium Publications in Proceedings**

- I. **Mechatronic Design for Multi Robots-Insect Swarms Interactions**  
Rekabi-Bana F., Stefanec M., Ulrich J., Keyvan E. E., Roucek T., Broughton G., Gundeger B. Y., ŞAHİN Ö., TURGUT A. E., ŞAHİN E., et al.  
2023 IEEE International Conference on Mechatronics, ICM 2023, Leicester, England, 15 - 17 March 2023
- II. **Distributed Model Predictive Formation Control of Robots with Sampled Trajectory Sharing in Cluttered Environments**  
Satır S., Aktaş Y. F., Atasoy S., ANKARALI M. M., ŞAHİN E.  
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Michigan, United States Of America, 1 - 05 October 2023, pp.9309-9315
- III. **Towards Data-Driven Discovery of Governing Swarm Robots Flocking Rules**  
Khaldi B., KEYVAN E. E., ŞAHİN M., TURGUT A. E., ŞAHİN E.  
11th European Conference on Mobile Robots, ECMR 2023, Coimbra, Portugal, 4 - 07 September 2023
- IV. **A Novel Time-of-Flight Range and Bearing Sensor System for Micro Air Vehicle Swarms**  
BİLAŁOĞLU C., Şahin M., Arvin F., ŞAHİN E., TURGUT A. E.  
13th International Conference on Swarm Intelligence: ANTS 2022, Malaga, Spain, 10 September 2022
- V. **Robotic Replicants for Improving Queen Bee Health and Persistence of the Honey Bee Colony**  
ALEMDAR H., Arslan O. C., Arvin F., Broughton G., Dvoracek D., Erdem B., GÖDELEK O., Güderer B. Y., Kara M. Y., Keyvan E. E., et al.  
47th APIMONDIA International Apicultural Congress, İstanbul, Turkey, 24 August 2022
- VI. **Mind the Gap! Predictive Flocking of Aerial Robot Swarm in Cluttered Environments**  
ÖNÜR G., TURGUT A. E., ŞAHİN E.  
13th International Conference on Swarm Intelligence, ANTS 2022, Malaga, Spain, 2 - 04 November 2022, vol.13491 LNCS, pp.171-182
- VII. **AssembleRL: Learning to Assemble Furniture from Their Point Clouds**  
Aslan O., Bolat B., Bal B., Tumer T., Şahin E., Kalkan S.  
2022 IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2022, Kyoto, Japan, 23 - 27 October 2022, vol.2022-October, pp.2748-2753
- VIII. **Texture Analysis by Deep Twin Networks for Paper Fraud Detection İkiz Derin Ağlarla Dokulu Analizi ile Evrak Sahteciliğinin Tesbiti**  
Ekiz E., ŞAHİN E., YARMAN VURAL F. T.  
30th Signal Processing and Communications Applications Conference, SIU 2022, Safranbolu, Turkey, 15 - 18 May 2022
- IX. **Designing Social Cues for Collaborative Robots: The Role of Gaze and Breathing in Human-Robot Collaboration**  
Terzioglu Y., Mutlu B., Şahin E.  
ACM/IEEE International Conference on Human-Robot Interaction (HRI), Cambridge, Canada, 23 - 26 March 2020, pp.343-357
- X. **ROS Tabanlı Bagimsiz Güvenlik Bekcisi Modulu**  
KURNAZ F. C., terzioglu y., BUYUKGOZ S., ŞAHİN E.  
Turkiye Robotbilim Konferansı, İstanbul, Turkey, 12 - 14 April 2018
- XI. **Yeni Bir Savunma Konsepti olarak Süre İHA Sistemleri**  
ŞAHİN E., ARIKAN K. B., hacıoğlu a., ÜRE N. K., aslan m., TURGUT A. E., erdener a.  
Otomatik Kontrol Ulusal Toplantısı, TOK 2017, Turkey, 21 - 23 September 2017, pp.709-713
- XII. **Robotların Manipülasyon Modelerini Ogrenmek Için Nesnelerin Yonetimlerinde Bağlanım Madaan r., ŞAHİN E., paolini r., mason m. t.**  
TORK 2016: Turkiye Robotbilim Konferansı, İstanbul, Turkey, 2 November - 03 January 2016
- XIII. **Mikro İnsansız Hava Araçlarının Kademeeli Sınıflandırıcılarla Algılanması ve Mesafe Tespiti**  
Gökçe F., Üçoluk G., Şahin E., Kalkan S.  
Turkiye Robotbilim Konferansı, İstanbul, Turkey, 26 - 27 October 2015

- XIV. **Integrating Spatial Concepts into a Probabilistic Concept Web**  
Celikkanat H., Sahin E., Kalkan S.  
International Conference on Advanced Robotics (ICAR), İstanbul, Turkey, 27 - 31 July 2015, pp.259-264
- XV. **Learning and Using Context on a Humanoid Robot Using Latent Dirichlet Allocation**  
Celikkanat H., Orhan G., Pugeault N., Guerin F., Şahin E., Kalkan S.  
4th Joint IEEE International Conferences on Development and Learning and Epigenetic Robotics (IEEE ICDL-Epirob), Genoa, Italy, 13 - 16 October 2014, pp.201-207
- XVI. **Recurrent Slow Feature Analysis for Developing Object Permanence in Robots**  
ÇELİKKANAT H., ŞAHİN E., KALKAN S.  
IROS Workshop on Neuroscience and Robotics, 03 November 2013
- XVII. **Co-learning nouns and adjectives**  
Orhan G., Olgunsoylu S., Şahin E., Kalkan S.  
2013 IEEE 3rd Joint International Conference on Development and Learning and Epigenetic Robotics, ICDL 2013, Osaka, Japan, 18 - 22 August 2013
- XVIII. **Relating affordances with verbs, nouns and adjectives Sağlarlık ile fiiller, isimler ve sıfatların ilişkilendirilmesi**  
Kalkan S., Yürüten O., Şahin E.  
2013 21st Signal Processing and Communications Applications Conference, SIU 2013, Haspolat, Turkey, 24 - 26 April 2013
- XIX. **Self-discovery of motor primitives and learning grasp affordances**  
Ugur E., ŞAHİN E., ÖZTOP E.  
25th IEEE\RSJ International Conference on Intelligent Robots and Systems (IROS), Algarve, Portugal, 7 - 12 October 2012, pp.3262-3269
- XX. **Learning adjectives and nouns from affordances on the iCub humanoid robot**  
Yürüten O., Uyanık K. F., Çalışkan Y., Bozcuoğlu A. K., ŞAHİN E., KALKAN S.  
12th International Conference on Simulation of Adaptive Behavior, SAB 2012, Odense, Denmark, 27 - 30 August 2012, vol.7426 LNAI, pp.330-340
- XXI. **Human and robotics hands grasping danger**  
ANELLİ F., NICOLETTİ R., KALKAN S., ŞAHİN E., BORGHI A. M.  
International Joint Conference on Neural Networks (IJCNN), Brisbane, Australia, 10 - 15 June 2012
- XXII. **Closed-loop primitives: A method to generate and recognize reaching actions from demonstration**  
Parlaktuna M., Tunaoglu D., ŞAHİN E., Ugur E.  
2012 IEEE International Conference on Robotics and Automation, ICRA 2012, Saint Paul, MN, United States Of America, 14 - 18 May 2012, pp.2015-2020
- XXIII. **Learning to grasp with parental scaffolding**  
Ugur E., Celikkanat H., ŞAHİN E., Nagai Y., Oztop E.  
2011 11th IEEE-RAS International Conference on Humanoid Robots, HUMANOIDS 2011, Bled, Slovenia, 26 - 28 October 2011, pp.480-486
- XXIV. **Unsupervised Learning of Object Affordances for Planning in a Mobile Manipulation Platform**  
Ugur E., ŞAHİN E., Oztop E.  
IEEE International Conference on Robotics and Automation (ICRA), Shanghai, China, 9 - 13 May 2011
- XXV. **Learning affordances for categorizing objects and their properties**  
Dağ N., Atil I., KALKAN S., ŞAHİN E.  
2010 20th International Conference on Pattern Recognition, ICPR 2010, İstanbul, Turkey, 23 - 26 August 2010, pp.3089-3092
- XXVI. **Towards linking affordances with mirror/canonical neurons**  
ŞAHİN E., ERDOĞAN S. T.  
24th International Symposium on Computer and Information Sciences, Güzelyurt, Cyprus (Kktc), 14 - 16 September 2009, pp.396-403
- XXVII. **Unsupervised Learning of Affordance Relations on a Humanoid Robot**  
Akgun B., Dag N., Bilal T., Atil I., ŞAHİN E.

- 24th International Symposium on Computer and Information Sciences, Güzelyurt, Cyprus (Kktc), 14 - 16 September 2009, pp.253-258
- XXVIII. Predicting future object states using learned affordances**  
Ugur E., ŞAHİN E., Ozttop E.  
24th International Symposium on Computer and Information Sciences, Güzelyurt, Cyprus (Kktc), 14 - 16 September 2009, pp.414-416
- XXIX. Modeling Self-Organized Aggregation in Swarm Robotic Systems**  
Bayindir L., Sahin E.  
IEEE Swarm Intelligence Symposium, Tennessee, United States Of America, 30 March - 02 April 2009, pp.88-89
- XXX. Guiding a Robot Flock via Informed Robots**  
Celikkanat H., TURGUT A. E., ŞAHİN E.  
9th International Symposium on Distributed Autonomous Robotic Systems (DARS 9), Tsukuba City, Japan, 17 - 19 November 2008, pp.215-225
- XXXI. Modeling Phase Transition in Self-organized Mobile Robot Flocks**  
TURGUT A. E., Huepe C., Celikkanat H., Gokce F., ŞAHİN E.  
6th Biannual International Conference on Ant Colony Optimization and Swarm Intelligence, Brussels, Belgium, 22 - 24 September 2008, vol.5217, pp.108-119
- XXXII. Using learned affordances for robotic behavior development**  
Doğar M. R., Ugur E., Şahin E., Çakmak M.  
2008 IEEE International Conference on Robotics and Automation, ICRA 2008, Pasadena, CA, United States Of America, 19 - 23 May 2008, pp.3802-3807
- XXXIII. Self-organized flocking with a mobile robot swarm**  
TURGUT A. E., Çelikkanat H., Gökc F., Şahin E.  
7th International Joint Conference on Autonomous Agents and Multiagent Systems, AAMAS 2008, Estoril, Portugal, 12 - 16 May 2008, vol.1, pp.40-47
- XXXIV. From primitive behaviors to goal-directed behavior using affordances**  
Doğar M. R., Çakmak M., Uğur E., Şahin E.  
2007 IEEE/RSJ International Conference on Intelligent Robots and Systems, IROS 2007, San Diego, CA, United States Of America, 29 October - 02 November 2007, pp.729-734
- XXXV. Dispersion of a swarm of robots based on realistic wireless intensity signals**  
Ugur E., TURGUT A. E., ŞAHİN E.  
22nd International Symposium on Computer and Information Sciences, Ankara, Turkey, 7 - 09 November 2007, pp.419-424
- XXXVI. Kobot: Sürü Robot Çalışmaları için Tasarlanmış Gezgin Robot Platformu**  
TURGUT A. E., GÖKC F., ÇELİKKANAT H., BAYINDIR L., ŞAHİN E.  
Otomatik Kontrol Ulusal Toplantısı. TOK'07, İstanbul, Turkey, 5 - 07 September 2007, pp.1-6
- XXXVII. Curiosity-driven learning of traversability affordance on a mobile robot**  
Ugur E., Dogar M. R., Cakmak M., ŞAHİN E.  
6th IEEE International Conference on Development Learning, London, Canada, 11 - 13 July 2007, pp.128-133
- XXXVIII. The learning and use of traversability affordance using range images on a mobile robot**  
Ugur E., Dogar M. R., Cakmak M., ŞAHİN E.  
IEEE International Conference on Robotics and Automation, Rome, Italy, 10 - 14 April 2007, pp.1721-1722
- XXXIX. Oğul-Robot Sistemleri için Sinyalleşme Sistemi Tasarımı**  
TURGUT A. E., ÇAKMAK M., ŞAHİN E., KOKU A. B.  
Türk Otomatik Kontrol Ulusal Toplantısı (TOK06), Ankara, Turkey, 6 - 08 November 2006
- XL. Oğul Robot Sistemleri İçin Basit bir Görüntüleme Sistemi Tasarımı**  
ÇELİKKANAT H., TURGUT A. E., ŞAHİN E., KOKU A. B.  
Otomatik Kontrol Ulusal Toplantısı. TOK'06, Ankara, Turkey, 6 - 08 November 2006, pp.1-6
- XLI. Oğul Robot Sistemleri için Basit Bir Görüntüleme Sistemi Tasarımı**  
ÇELİKKANAT H., TURGUT A. E., ŞAHİN E., KOKU A. B.  
Türk Otomatik Kontrol Ulusal Toplantısı (TOK06), Ankara, Turkey, 6 - 08 November 2006

- XLII. **A macroscopic model for self-organized aggregation in swarm robotic systems**  
Soysal O., ŞAHİN E.  
2nd SAB International Workshop 2006, Rome, Italy, 30 September - 01 October 2006, vol.4433, pp.27-29
- XLIII. **The MACS project: An approach to affordance-inspired robot control**  
Rome E., Paletta L., ŞAHİN E., Dorffner G., Hertzberg J., Breithaupt R., Fritz G., Irran J., Kintzler F., Loerken C., et al.  
International Seminar on Towards Affordance-Based Robot Control, Dagstuhl, Germany, 5 - 09 June 2006,  
vol.4760, pp.173-179
- XLIV. **Swarm robotics: From sources of inspiration to domains of application**  
ŞAHİN E.  
SAB 2004 International Workshop, Santa Monica, CA, United States Of America, 17 July 2004, vol.3342, pp.10-20
- XLV. **Probabilistic aggregation strategies in swarm robotic systems**  
Soysal O., Sahin E.  
IEEE Swarm Intelligence Symposium, California, United States Of America, 8 - 10 June 2005, pp.325-332
- XLVI. **Evolving aggregation behaviors for swarm robotic systems: A systematic case study**  
Bahceci E., Sahin E.  
IEEE Swarm Intelligence Symposium, California, United States Of America, 8 - 10 June 2005, pp.333-340
- XLVII. **Evolving aggregation behaviors in a Swarm of robots**  
Trianni V., Groß R., Labella T. H., ŞAHİN E., Dorigo M.  
7th European Conference on Artificial Life, ECAL 2003, Dortmund, Germany, 14 - 17 September 2003, vol.2801,  
pp.865-874
- XLVIII. **Swarm-bot: Pattern formation in a swarm of self-assembling mobile robots**  
Şahin E., Labella T. H., Trianni V., Deneubourg J., Rasse P., Floreano D., Gambardella L., Mondada F., Nolfi S., Dorigo M.  
2002 IEEE International Conference on Systems, Man and Cybernetics, Yasmine Hammamet, Tunisia, 6 - 09 October 2002, vol.4, pp.145-150
- XLIX. **Simulation of nest assessment behavior by ant scouts**  
Şahin E., Franks N.  
3rd International Workshop on Ant Algorithms, ANTS 2002, Brussels, Belgium, 12 - 14 September 2002, vol.2463,  
pp.274-281
- L. **Towards an on-line neural conditioning model for mobile robots**  
Şahin E.  
6th International Work-Conference on Artificial and Natural Neural Networks, IWANN 2001, Granada, Spain, 13 - 15 June 2001, pp.524-530
- LI. **Development of a visual object localization module for mobile robots**  
Şahin E., Gaudiano P.  
3rd European Workshop on Advanced Mobile Robots, Eurobot 1999, Zürich, Switzerland, 6 - 08 September 1999,  
pp.65-72
- LII. **Mobile robot range sensing through visual looming**  
Şahin E., Gaudiano P.  
Joint Conference on the Science and Technology of Intelligent Systems ISIC/CIRA/ISAS, Maryland, United States Of America, 14 - 17 September 1998, pp.370-375
- LIII. **Visual Looming as a range sensor for mobile robots**  
Şahin E., Gaudiano P.  
5th International Conference on Simulation of Adaptive Behavior, Zürich, Switzerland, 17 - 21 August 1998,  
pp.114-119
- LIV. **A BINARY-INPUT SUPERVISED NEURAL UNIT THAT FORMS INPUT DEPENDENT HIGHER-ORDER SYNAPTIC CORRELATIONS**  
GULER M., SAHIN E.  
1994 International-Neural-Network-Society Annual Meeting - World Congress on Neural Networks-San Diego, California, United States Of America, 5 - 09 June 1994

## **Supported Projects**

ŞAHİN E., ANKARALI M. M., KALKAN S., SARANLI U., YAZICIOĞLU Y., CİNBIŞ R. G., CB Strateji ve Bütçe Başkanlığı (Kalkınma Bakanlığı) Projesi, Robotik Teknolojileri Araştırma, Geliştirme ve Eğitim Merkezi (ROMER), 2019 - Continues  
ŞAHİN E., TUBITAK Project, CIRAK: Montaj İşçileri için Uyumlu Robot Manipulator Destegi, 2017 - Continues  
Şahin E., Turgut A. E., Alemdar H., H2020 Project, ROBOtic Replicants for Optimizing the Yield by Augmenting Living Ecosystems, 2021 - 2026  
ŞAHİN E., TUBITAK Project, Kalfa: İşbirlikçi Robotlarda Montaj Senaryolarına Yönelik Yeni Metotlar, 2021 - 2024  
Şahin E., Turgut A. E., Company, Sürü İHA Geliştirme Projesi, 2019 - 2021  
ŞAHİN E., TUBITAK Project, ÇIRAK: Montaj İşçileri İçin Uyumlu Robot Manipülatör Desteği, 2017 - 2020  
Şahin E., Yazıcı A., FP7 Project, IthruI Towards Better Robot Manipulation Improvement through Interaction, 2014 - 2016  
ŞAHİN E., TUBITAK Project, İnsansı Robotlarda Sağlalık Tabanlı Kavram Gelişimi ve Alet Kullanımı, 2009 - 2013  
Şahin E., EU Supported Other Project, Emergence of Communication in iCub through Sensorimotor and Social Interaction http eris liralab it wiki RobotCub Open Call de 31 proje arasında 6 olup 255000 Euroluk bir insansi robot kazandim  
Robot ve iliskili proje Aralik 2009da basladi, 2009 - 2012  
Şahin E., Kalkan S., FP7 Project, ROSSI, 2008 - 2011  
ŞAHİN E., TUBITAK Project, Kontrol Edilebilir Robot Oğulları, 2005 - 2010  
Şahin E., Üçoluk G., FP6 Project, MACS, 2004 - 2007

## **Contractual Researches**

Şahin E., Turgut A. E., ATILIM Üniversitesi, Sürü İHA TKY Projesi, 2017 - 2019

## **Activities in Scientific Journals**

SWARM INTELLIGENCE, Committee Member, 2008 - Continues  
Adaptive Behavior, Assistant Editor/Section Editor, 2008 - Continues

## **Scientific Refereeing**

AUTONOMOUS AGENTS AND MULTI-AGENT SYSTEMS, SCI Journal, November 2019  
INTERNATIONAL JOURNAL OF ROBOTICS RESEARCH, SCI Journal, November 2019  
INTERNATIONAL JOURNAL OF ADVANCED ROBOTIC SYSTEMS, Other Indexed Journal, September 2019  
TUBITAK Project, 1003 - Priority Areas R&D Projects Support Program, Middle East Technical University, Turkey, August 2019

## **Metrics**

Publication: 87  
Citation (WoS): 1681  
Citation (Scopus): 2259  
H-Index (WoS): 16  
H-Index (Scopus): 21

## **Congress and Symposium Activities**

21st International Conference on Speech and Computer SPECOM 2019, Invited Speaker, İstanbul, Turkey, 2019

**Yapay Öğrenme Yaz Okulu, Invited Speaker, İstanbul, Turkey, 2019**  
**Turkiye Robotbilim Kongresi, Working Group, İstanbul, Turkey, 2019**

## **Invited Talks**

**Imbuing Collaborative Robotic Manipulators with Human-Robot Interaction Skills, Seminar, Koc University, Turkey, October 2022**

## **Non Academic Experience**

Carnegie Mellon University

Universite Libre de Bruxelles

Starlab Research Laboratories

Boston University

METU