Halil Ersin Söken

Aerospace Engineering Department, Middle East Technical University, METU Campus, Çankaya, 06800 Ankara, Turkey

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Professional Experience

2023/10 – **Associate Professor**
Middle East Technical University, Aerospace Engineering Dep., Ankara, Turkey

2020/09 – 2023/10 **Assistant Professor**
Middle East Technical University, Aerospace Engineering Dep., Ankara, Turkey

2021/02 – **Consultant**
TUBITAK Space Technologies Research Institute, Ankara, Turkey

2018/11 – 2020/08 **Chief Researcher**
TUBITAK Space Technologies Research Institute, Ankara, Turkey

2019/02 – 2020/08 **Adjunct Lecturer**
Middle East Technical University, Aerospace Engineering Dep., Ankara, Turkey

2017/04 – 2018/11 **System Researcher**
Japan Aerospace Exploration Agency (JAXA), Institute of Space and Astronautical Science (ISAS) Sagamihara, Japan

2014/04 – 2017/04 **Aerospace Project Research Associate**
Japan Aerospace Exploration Agency (JAXA), Institute of Space and Astronautical Science (ISAS) Sagamihara, Japan

2010/10 – 2013/09 **Research Assistant**
Japan Aerospace Exploration Agency (JAXA), Institute of Space and Astronautical Science (ISAS) Sagamihara, Japan

2010/02– 2010/09 **Research/Teaching Assistant**
Istanbul Technical University, Aeronautical Engineering Department, Istanbul, Turkey

Education

2013/09 **PhD. in Space and Astronautical Science**
The Graduate University for Advances Studies (SOKENDAI)
Parent Institute: *Institute of Space and Astronautical Science (ISAS)/ Japan Aerospace Exploration Agency (JAXA), Japan*
(GPA: 4.00, **Advisor:** Dr. S. Sakai)
Thesis Title: UKF Adaptation and Filter Integration for Attitude Determination and Control of Nanosatellites with Magnetic Sensors and Actuators

2009/07 **M.S. in Aeronautics and Astronautics**
Istanbul Technical University, Turkey
(**GPA:** 3.75, **Advisor:** Dr. C. Hajiyev)
Thesis Title: Kalman Filtering Applications on Attitude Determination of ITU-PSAT I Satellite

2008/06 **B.S. in Aeronautics (2nd Major)**
Istanbul Technical University, Turkey (**GPA:** 3.88)

2007/06 **B.S. in Astronautics (1st Major)**
Istanbul Technical University, Turkey (**GPA:** 3.61 ***"summa cum laude"***)

Honours & Awards

2023 **Senior Member**
IEEE

2022 **Research Encouragement Award**
METU Prof. Dr. Mustafa N. Parlar Education and Research Foundation

2018 **Outstanding Associate Editor**
IEEE Access

2017 **Special Award**
for contributions to the organization of the 8th International Conference on Recent Advances in Space Technologies (RAST2017), Istanbul, Turkey

2014 & 2016 **Excellent Reviewer**
AIAA Journal of Guidance, Control and Dynamics

2015 **International Scientific Conference Attendance Support**
by Society for Promotion of Space Science, Japan for presentation at 2015 European Aerospace Guidance Navigation and Control Conference, Toulouse, France

2013 **Graduate Student Paper Finalist Award**
2013 AIAA Guidance Navigation and Control Conference, Boston, USA.

2012 **Best Paper Award**
13th International Carpathian Control Conference, High Tatras, Slovak Republic.

2011 **Student Paper Award**
by ICROS (Institute of Control, Robotics and Systems), 11th International Conference on Control Automation and Systems, Seoul, Korea.

2011 **IFAC Young Author Support**
18thIFAC World Congress, Milano, Italy

2010 – 2013 **Scholarship for PhD. studies**
by MEXT (Japan Ministry of Education, Culture, Sports, Science and Technology)

2010 **Support for Abroad Scientific Activity**
by TUBITAK (The Scientific & Technological Research Council of Turkey) for presentation at 17th Saint Petersburg International Conference on Integrated Navigation Systems.

2007 – 2009 **Scholarship for MSc. studies**
by TUBITAK (The Scientific & Technological Research Council of Turkey)

2007 **Graduated Summa Cum Laude**
B.S in Astronautics

2003 – 2007 **Dean's Honour List**
High Honour List for 5 and honour list for 3 semesters out of 8

Grants

2019 – 2021 **Vision Based Attitude Estimation Methods for Small Satellites and Advanced Filtering Algorithms**
Principal Investigator: Halil Ersin Soken
Sponsor: The Scientific and Technological Research Council of Turkey
Amount: 133,000 TRY

2016 – 2019 **Real-time Estimation of Time-Varying Magnetometer Errors for Small Satellite Missions**
Principal Investigator: Halil Ersin Soken
Sponsor: Japan Society for the Promotion of Science, Grants-in-aid for Young Scientists B
Amount: ¥ 2,200,000

2012 – 2013 **Pure Magnetic Attitude Control for Small Spacecraft**
Principal Investigator: Halil Ersin Soken
Sponsor: The Graduate University for Advanced Studies, Course-by-Course Education Program to Cultivate Researchers in Physical Sciences with Broad Perspectives
Amount: ¥ 1,000,000

Research Projects

2023/08 – **Project Manager and Supervisor for METUCube Nanosatellite Project (Turkey)**
Student small satellite project funded by APSCO. Post-disaster monitoring and feasibility investigation for near-real time detection.

2022/11 – **Consultant for HelloSpace (Turkey)**
Attitude determination and control system design for the PocketQube satellites developed by the company.

2022/08 – 2023/09 **Researcher and Work Package Lead for Telespazio On-Board Image Processing (OBImPro) System – Phase 2 Project (Italy & Turkey)**
Design of an orbit determination tool that is capable of tasks such as initial orbit determination, orbit refinement and catalogue matching for resident space objects based on in-space collected images

2021/12 – **Chief Researcher for the AYAP-1 (Lunar Spacecraft-1) Project (Turkey)**
Design and implementation of navigation algorithms for TUBITAK Space Technologies Research Institute's AYAP-1 (Lunar Spacecraft-1) Project

2018/11 – **Chief Researcher for the IMECE and Turksat 6A Spacecraft Projects (Turkey)**
Design and implementation of attitude estimation algorithms for TUBITAK Space Technologies Research Institute's IMECE and Turksat 6A spacecraft

2014/04 – **Researcher for the ERG Spacecraft Project (Japan)**
Research on attitude determination algorithm design for JAXA's ERG spacecraft

2012/09,10 &2013/09 **Visiting researcher at Aalborg University (Denmark)**
Joint research with Dr. Rafael Wisniewski on "Pure Magnetic Attitude Control for Small Spacecraft"

2009 – 2010 **Researcher for TUBITAK project (Turkey)**
"Development of a High Performance Bus for Nano Satellites with Attitude Control" with Grant No. 108M523

2009 **Researcher for Istanbul Technical University Project for Support of International Cooperation (Turkey)** "*Adaptive Kalman Filter with Multiple Fading Factors for UAV State Estimation"*

2008-2009 **Researcher for Istanbul Technical University Scientific Research Project (Turkey)**
"Attitude Determination and Control System Development of a Pico Satellite Based on Adaptive Kalman Filter" with Grant No. 32812

2007 - 2009 **Researcher for TUBITAK project (Turkey)**
"*Design of Pico Satellites; Manufacturing of Engineering and Flight Models" with Grant No. 106M082.*

Professional Activities

Positions Held

2023 – **Faculty affiliate,** METU Center for Image Analysis
2023 – **Editor,** Space: Science & Technology
2023 **Session Chair,** IFAC 2023, 22nd World Congress of IFAC, Yokohama, Japan
2023 **Organizer and session chair,** 2 Special Sessions for the IEEE/AIAA 10thInternational Conference on Recent Advances in Air and Space Technologies (RAST), Istanbul, Turkey
2023 – **Member,** Scientific Working Group for Turkish Lunar Mission
2023 – **Expert,** Asia-Pacific Space Cooperation Organization, Linku Project
2023 **Member,** for 12th Development Plan, Space Research Work Group, Presidency of Strategy and Budget
2022 **International Program Committee Member,** 11th Nano-Satellite Symposium, Istanbul, Turkey
2022 **Session Chair**, 33rd International Symposium on Space Technology and Science, Oita, Japan
2022 – **Review Editor,** Frontiers in Aerospace Engineering
2021 **Judge,** NASA Space Apps Challenge Ankara
2021 **Mentor** for the winner group (PARS) for 7th Mission Idea Contest (**http://www.spacemic.net/**)
2019 & 2021 & 2023 **Session Chair** for 11th Ankara International Aerospace Conference, Ankara, Turkey
2019 – **Scientific committee member**, Ankara International Aerospace Conference (2 conferences)
2019/09 **Invited Participant,** 4th Congress on Turkish Scientists Abroad, Istanbul, Turkey.
2019/06 **Organizer and session chair,** 2 Special Sessions for the IEEE/AIAA 9thInternational Conference on Recent Advances in Space Technologies (RAST), Istanbul, Turkey.
2019 **Mentor,** International Astronautical Federation Abstract Mentor Programme

2018	**Guest Editor**, the special issue on "Spacecraft Attitude Determination and Control" of (MDPI) Aerospace
2017/06 –	**Associate Editor**, IEEE Access
2017/06	**Organizer and session chair,** 2 Special Sessions for the IEEE/AIAA 8thInternational Conference on Recent Advances in Space Technologies (RAST), Istanbul, Turkey.
2015 – 2019	**Scientific committee member**, the IEEE/AIAA International Conference on Recent Advances in Space Technologies (RAST) (3 conferences)
2014 – 2017	**Judge** for the AIAA Region VII Student Paper Conference (3 conferences)
2015/04	**Session Chair**, the 3rd CAES Specialists Conference on Guidance, Navigation and Control, Toulouse, France.
2013/11	**Session Chair**, the 5th Nanosatellite Symposium, Tokyo, Japan.
2013/08	**Session Chair**, the AIAA Guidance Navigation and Control Conference, Boston, USA.
University Services	
2021/12 –	**Vice Chair**, METU Aerospace Eng. Dept.
2020 –	**Member of Summer Practice Committee**, METU Aerospace Eng. Dept.
Lectures & Seminars	1. "Principles for Integrated Navigation" for ASELSAN, 24 hours, METU Continuing Education Center, Ankara, Turkey, 2023 2. "Fault-tolerant Attitude Determination and Control System Design for Small Satellites", Turkish Aeronautical Association University, Ankara, Turkey, 8 March 2023. 3. "MATLAB for Guidance Navigation and Control Applications in Aerospace Engineering" in MATLAB Educator Workshop, 2022 4. "Space Flight Mechanics", in "Near Earth Space Education Program" for Turkish Space Agency researchers, 6 hours, METU Continuing Education Center, Ankara, Turkey, 2021 5. "Control and Automation as a Part of Space Research in Turkey", Panel Discussion, TOK 2021 (National Automatic Control Congress), Van, Turkey, 2021 6. "Attitude Determination and Control for Small Satellites: A Review in the Perspective of Recent Problems", Turkish Aeronautical Association University, Ankara, Turkey, 5 March 2020. 7. "Attitude Determination for Small Satellites: Challenges and Solutions", The Second Summer Camp of APSCO Student Small Satellite Project, Middle East Technical University, Ankara, Turkey, 15 Aug. 2018
Memberships	
2016 –	IFAC (International Federation of Automatic Control), *Affiliate*
2012 –	AIAA (The American Institute of Aeronautics and Astronautics), *Member*
2011 –	IEEE (The Institute of Electrical and Electronics Engineers), *Member (2011-2023), Senior Member (2023 -)* IEEE Aerospace and Electronic Systems Society, *Member* (2020 -), IEEE Control Systems Society, *Member* (2023 -)
2021 –	UzTED (Uzay Teknolojileri ve Eğitimi Derneği), Member
Reviewer Assignments	▪ Acta Astronautica (7 papers) ▪ Advances in Space Research (6 papers) ▪ Advances in Mechanical Engineering (1 paper) ▪ Aerospace (1 paper) ▪ Aerospace Science and Technology (5 papers) ▪ AIAA Journal (1 paper) ▪ AIAA Journal of Guidance Control and Dynamics (3 papers) ▪ AIAA Journal of Aerospace Information Systems (2 papers) ▪ Aircraft Engineering and Aerospace Technology (1 paper) ▪ ASCE Journal of Aerospace Engineering (6 papers) ▪ Asian Journal of Control (6 papers) ▪ Automatica (1 paper) ▪ Chinese Journal of Aeronautics (2 papers) ▪ Circuits, Systems and Signal Processing (2 papers) ▪ Digital Signal Processing (2 papers) ▪ Drone Systems and Applications (1 paper) ▪ IEEE Access (31 papers) ▪ IEEE Aerospace and Electronic Systems Magazine (1 paper) ▪ IEEE Magnetics Letters (3 papers) ▪ IEEE Sensors Journal (3 papers) ▪ IEEE Sensor Letters (1 paper) ▪ IEEE Signal Processing Letters (1 paper) ▪ IEEE Transactions on Aerospace and Electronic Systems (15 papers) ▪ IEEE Transactions on Automation Science and Engineering (1 paper)

- IEEE Transactions on Industrial Electronics (6 papers)
- IEEE Transactions on Instrumentation & Measurement (6 papers)
- IEEE Transactions on Intelligent Vehicles (1 paper)
- IEEE/ASME Transactions on Mechatronics (1 paper)
- IEEE Transactions on Magnetics (2 papers)
- IEEE Transactions on Signal Processing (3 papers)
- IET Control Theory & Applications (2 papers)
- IET Radar, Sonar & Navigation (4 papers)
- IET Science, Measurement and Technology (2 papers)
- ISA Transactions (4 papers)
- Journal of Geodesy (1 paper)
- Journal of Signal Processing Systems (1 paper)
- Navigation (1 paper)
- Measurement (4 papers)
- Sensors (12 papers)
- Transactions of JSASS Aerospace Technology Japan (1 paper)

Media Coverage

- TÜBİTAK Bilim Genç, Video Interview on Aerospace Engineering in Turkey (https://bilimgenc.tubitak.gov.tr/makale/havacilik-ve-uzay-muhendisleri-ne-yapar)
- News from METU, METU Team Received the 1st Prize at International Space Mission Idea Contest (https://basinda.metu.edu.tr/icerik/odtuden/215)
- TRT Radyo-1, 4th Jan. 2022, Eğitim Rotası
- Sarkaç, What is aerospace engineering? (https://sarkac.org/2022/01/ucak-ve-uzay-muhendisligi-nedir/)
- Meraklısına Bilim (Science for the Curious), Science Academy, Space Mission Design and James Webb Telescobe (https://www.youtube.com/watch?v=BykUBJQCDOk)

COURSE DEVELOPMENT &TEACHING

Middle East Technical University

AE484 Inertial Navigation System (**Restructured / Undergraduate – 5 Semesters**)

AE554 Applied Orbital Mechanics (**Restructured / Graduate – 5 Semesters**)

AE383 System Dynamics (**Undergraduate – 2 Semesters)**

AE372 Flight Dynamics (**Undergraduate – 3 Semesters)**

AE486 Spacecraft Dynamics (**Restructured / Undergraduate – 3 Semesters)**

RESEARCH SUPERVISION

PhD

Özgür Kahraman (co-advised with Prof. Zuhal Akyürek), Attitude Estimation Performance Enhancement for Gokturk-2 Satellite, 2023

MS

Nur Sıla Eroğlu, Ins/Gps Integration and Adaptive Filtering Methods for Guided Munitions, 2023

Tahir Yanık, Design of Guidance System for an Air-launch Rocket, 2023

Semra Sultan Uzun, Investigation of Different Approaches for Visual Odometry for Aerospace Vehicles in Unknown Environments, 2023

Cansu Yıldırım, Fault Tolerant Multi-Algorithmic Attitude Determination and Control System for Small Satellites Based on Bayesian Networks, 2023

Yağız Kurt, Improving The State Estimation Accuracy of Real-Time Vision Based Multiple Target Tracking Algorithms with Unequal Dimension Interactive Multiple Model Estimator, 2023

Volkan Paksoy (Sivas Science and Technology University), Optical Navigation for Small Lunar Spacecraft Using the Basilisk Astrodynamics Software, 2023

Arif Can Başıbüyük, Orbit Design for Regional Navigation Satellite System of Turkiye Based on Particle Swarm Optimization, 2023

Doğukan Benli, Designing Computationally Light Algorithms for Concurrent Real-Time Attitude Estımation and Sensor Calibratıon, 2023

Şirin Yakupoğlu Altuntaş (co-advised with Prof. Cengiz Hacızade, İstanbul Technical University), Gyroless Attitude Estimation Algorithm for Nanosatellite, 2022

Mehmet Eşit (co-advised with Prof. Cengiz Hacızade, İstanbul Technical University), Attitude Estimation and Magnetic Attitude Control of a Leo Satellite, 2022

Batu Candan, Design of Attitude Estimation Algorithms for Inertial Sensors Only Measurement Scenarios, 2022

	Mustafa Efe Çetin, Real-time Magnetometer Calibration for Spinning Aerospace Vehicles, 2022 **Mehmet Burak Guzel** (co-advised with Prof. Ozan Tekinalp), Design of a Vision-based Three-axis Attitude Determination Algorithm for Small Satellites, 2021
Undergraduate	**Emine Yakın & İbrahim Doğa Ergin,** Attitude Determination and Control System Design for PocketQubes, 2023 (*funded by HelloSpace*) **Göktuğ Mete Kesici,** Attitude Determination Algorithms for Small Spacecraft, 2023 (*funded by TUBITAK Uzay*) **Gülce Tuzcu,** Magnetometer Calibration for Small Spacecraft, 2023 (*funded by TUBITAK Uzay*) **Flight Mechanics and Control Team** for TUSAŞ Very Light Aircraft (VLA) Project, 2023 - (*funded by Turkish Aerospace Inc.)* **Yusuf Devranlı,** Relative Position and Attitude Estimation in Space with PSD Sensors, 2022 **Özgür Akça & Kaan Ege Tirman,** Gyro Calibration Using Star-tracker, 2022 (*funded by Turkish Aerospace Inc. Lift-Up Project*) **Adil Shaikh,** Visual Navigation Methods for a Moon Mission, 2022 (*funded by TUBITAK 2209a Research Project Support Programme for Undergraduate Students & AdımODTÜ*) **Avion Team**, Object Detection with Self-Made Unmanned Aerial Vehicle, 2022 (*funded by AdımODTÜ*) **Betül Rana Kuran & Atakan Süslü,** Design of a Visual Pose Estimation Algorithm for Moon Landing, 2022 **Özlem Deniz Öztürk**, Modeling and Visualization of a Satellite's Orbit and Orientation on MATLAB, 2021 **Esra Kaplan**, Extended Kalman Filter Design as a Part of Star Identification and Tracking Algorithms, 2021 **Emre Oksal**, Application of Kosik's Star Identification Algorithm,2021 **Ahmet Emre Açıkgöz**, Application of Pyramid Star Identification Algorithm, 2021
Committee Member	**Tuğba Bayoğlu** (PhD – Middle East Technical University, AE Dept.) A Novel Approach to Reachability Analysis of Aerodynamic Interceptors, 2023 **Sandra Nafuna Wanyonyi** (MS – Middle East Technical University, AE Dept.) Vibration Control of Thin Structures Using a Reinforcement Learning Approach, 2023 **Şevket Utku Aydınlı** (MS – Middle East Technical University, AE Dept.) Deep Reinforcement Learning for Autonomous Quadcopter Guidance, 2023 **Ongun Hazar Aslandoğan** (MS – Middle East Technical University, AE Dept.) Development of a rotorcraft time domain system identification software, 2023 **Mustafa Özdemir** (MS – Middle East Technical University, AE Dept.) Mathematical Dynamic Model-Based Preliminary Design and Optimization of The Fixed-Wing Aircrafts, 2022 **Fatih Çalış** (MS – Middle East Technical University, EE Dept.), Linear Parameter Varying Control for Autonomous Systems: Methods and Application Examples, 2022 **Emre Han Ata** (MS – Middle East Technical University, ME Dept.), Inertial-Navigation System Aiding by Combining Data Link and Seeker Measurement, 2022 **Demet Çilden Güler** (PhD – Istanbul Technical University), Development of Single-Frame Methods Aided Kalman-Type Filtering Algorithms for Attitude Estimation of Nano-Satellites, 2021
SKILLS &OTHER	
Mother tongue(s)	Turkish
Other language(s)	English (TOEFL IBT Score: 92 / YDS: 95) French (DELF B1 Certificate) Japanese (Beginner level)
Links for Websites	Google Scholar: "Halil Ersin Söken" Scopus Author ID: 57196105295 Orcid ID: 0000-0002-4796-8188 ResearcherID: K-1833-2016 Publons: /a/1449717/ ResearchGate: https://www.researchgate.net/profile/Halil_Soken

PUBLICATIONS

Journal Papers

J1. H.E. Soken and C. Hajiyev, "Pico Satellite Attitude Estimation via Robust Unscented Kalman Filter in the Presence of Measurement Faults," ISA Transactions, vol.49, no. 3, pp. 249-256, 2010. DOI: 10.1016/j.isatra.2010.04.001

J2. H.E. Soken and C. Hajiyev, "In-Flight Calibration of Pico Satellite Attitude Sensors via Unscented Kalman Filter," Gyroscopy and Navigation, vol.2, no.3, pp.156-163, 2011. DOI: 10.1134/S2075108711030114

J3. C. Hajiyev and H.E. Soken, "Robust Estimation of UAV Dynamics in Presence of Measurements Faults," ASCE Journal of Aerospace Engineering, vol.25, no.1, pp.1-10, 2012. DOI: 10.1061/(ASCE)AS.1943-5525.0000095

J4. H.E. Soken and C. Hajiyev, "UKF Based In-Flight Calibration of Magnetometers and Rate Gyros for Pico Satellite Attitude Determination," Asian Journal of Control, vol.14, no.3, pp.707-715, 2012. DOI: 10.1002/asjc.368

J5. H.E. Soken and C. Hajiyev, "UKF Based Reconfigurable Attitude Parameters Estimation and Magnetometer Calibration," IEEE Transactions on Aerospace and Electronic Systems, vol.48, no.3, pp.2614-2627, 2012. DOI: 10.1109/TAES.2012.6237612

J6. C. Hajiyev and H.E. Soken, "Robust Adaptive Kalman Filter for Estimation of UAV Dynamics in the Presence of Sensor/Actuator Faults," Aerospace Science and Technology, vol. 28, pp.376-383, 2013. DOI: 10.1016/j.ast.2012.12.003

J7. H.E. Soken and C. Hajiyev, "Adaptive Fading UKF with Q-Adaptation: Application to Pico Satellite Attitude Estimation," ASCE Journal of Aerospace Engineering, vol.26, no.3, 628–636, 2013. DOI: 10.1061/(ASCE)AS.1943-5525.0000178

J8. C. Hajiyev and H.E. Soken, "Robust Adaptive Unscented Kalman Filter for Attitude Estimation of Pico Satellites," International Journal of Adaptive Control and Signal Processing, vol.28, pp.107-120, 2014. DOI: 10.1002/acs.2393

J9. H.E. Soken, C. Hajiyev and S. Sakai, "Robust Kalman Filtering for Small Satellite Attitude Estimation in the Presence of Measurement Faults," European Journal of Control, vol.20, pp.64-72, 2014. DOI: 10.1016/j.ejcon.2013.12.002

J10. H.E. Soken and C. Hajiyev, "Estimation of the Pico Satellite Attitude Dynamics and External Torques via Unscented Kalman Filter," Journal of Aerospace Technology and Management, vol. 6, no.2, pp.149-157, 2014. DOI: 10.5028/jatm.v6i2.352

J11. H.E. Soken and C. Hajiyev, "REKF and RUKF for Pico Satellite Attitude Estimation in the Presence of Measurement Faults," Journal of Systems Engineering and Electronics, vol.25, no.2, pp.288-297, 2014.

J12. H.E. Soken, S. Sakai and R. Wisniewski, "In-Orbit Estimation of Time-Varying Residual Magnetic Moment," IEEE Transactions on Aerospace and Electronic Systems, vol. 50, no.4, pp. 3126-3136, 2014, DOI: 10.1109/TAES.2014.130225

J13. H.E. Soken and S. Sakai, "Adaptive Tuning of the UKF for Satellite Attitude Estimation," ASCE Journal of Aerospace Engineering, vol.28, no.3, 2015, DOI: 10.1061/(ASCE)AS.1943-5525.0000412

J14. O. Khurshid, J. Selkainaho, H.E. Soken, E. Kallio and A. Visala, "Small Satellite Attitude Determination during Plasma Brake Deorbiting Experiment," Acta Astronautica, vol. 129, pp. 52-58, 2016, DOI: 10.1016/j.actaastro.2016.08.035

J15. D. Cilden, H.E. Soken and C. Hajiyev, "Nanosatellite Attitude Estimation from Vector Measurements Using SVD-Aided UKF Algorithm," Metrology and Measurement Systems, vol. 24, no.1, 2017, pp.113-125, DOI: 10.1515/mms-2017-0011

J16. H.E. Soken and S. Sakai, "Real-time Attitude-Independent Magnetometer Bias Estimation for Spinning Spacecraft," Journal of Guidance, Control, and Dynamics, vol.41, no.1, pp.276-279. 2018. DOI: 10.2514/1.G002706

J17. H.E. Soken, "A Survey of Calibration Algorithms for Small Satellite Magnetometers" Measurement, vol.122, pp.417-423,2018. DOI: 10.1016/j.measurement.2017.10.017

J18. H.E. Soken, "An Attitude Filtering and Magnetometer Calibration Approach for Nanosatellites" International Journal of Aeronautical and Space Sciences, vol.19, no.1, pp.164-171, 2018. DOI: 10.1007/s42405-018-0020-8

J19. Y. Nakamura, S. Fukuda, Y. Shibano, H. Ogawa, S.Sakai, S. Shimizu, H.E. Soken, et al. "Exploration of Energization and Radiation in Geospace (ERG): Challenges, Development and Operation of Satellite System," Earth, Planets and Space, pp.70-102, 2018. DOI: 10.1186/s40623-018-0863-z

J20. C. Hajiyev, H.E. Soken and D. Cilden-Guler, "Nontraditional Attitude Filtering with Simultaneous Process and Measurement Covariance Adaptation," ASCE Journal of Aerospace Engineering, vol.32, no.5, 2019. DOI: 10.1061/(ASCE)AS.1943-5525.0001038.

J21. H.E. Soken and S. Sakai, "A new likelihood approach to autonomous multiple model estimation", ISA Transactions, vol.99, pp.50-58, 2020. DOI: 10.1016/j.isatra.2019.09.005

J22. H.E. Soken and S. Sakai, "Attitude estimation and magnetometer calibration using reconfigurable TRIAD+filtering approach", Aerospace Science and Technology, Vol.99, 2020. DOI: 10.1016/j.ast.2020.105754

J23. H.E. Soken, S. Sakai, K. Asamura, Y. Nakamura, T. Takashima and I. Shinohara, "Filtering-Based Three-Axis Attitude Determination Package for Spinning Spacecraft: Preliminary Results with Arase", Aerospace, vol.17, no.7, 2020. DOI: 10.3390/aerospace7070097

J24. M. Esit, S. Yakupoglu and H.E. Soken, "Attitude Filtering for Nanosatellites: A Comparison of Different Approaches Under Model Uncertainties", Advances in Space Research, vol.68, no.6, pp. 2551-2564, 2021, DOI: 10.1016/j.asr.2021.04.043

J25. B. Candan and H.E. Soken, "Robust Attitude Estimation Using IMU-only Measurements", IEEE Transactions on Instrumentation and Measurement, vol. 70, 2021, DOI: 10.1109/TIM.2021.3104042

J26. H.E. Soken, "Angular Velocity Estimation for Nanosatellites Using Vector Measurements", Journal of Aeronautics and Space Technologies, vol.14, no.2, 2021.

J27. S. Yakupoglu Altuntas, M. Esit, H.E. Soken and C. Hajiyev, "Backup Magnetometer-Only Attitude Estimation Algorithm for Small Satellites", IEEE Sensors Journal, vol.22, no.13, 2022, DOI: 10.1109/JSEN.2022.3175261

J28. M.E. Cetin, H.E. Soken and S. Sakai, "Real-time Attitude Independent Calibration of Spinning Spacecraft Magnetometers using Quasi-Measurements", The Journal of Astronautical Sciences, vol. 69, pp.1726-1743, 2022. DOI: 10.1007/s40295-022-00349-5

J29. O. Kahraman and H.E. Soken, "Incorporating Delayed Star Tracker Measurements in Gokturk-2 Satellite Attitude Filter", Advances in Space Research, vol. 72, no.2, pp.200-210, 2023, DOI: 10.1016/j.asr.2023.03.005

J30. H.E. Soken, S.N. Sozen, M. Gokce, C. Yavuzyilmaz and F. Gulmammadov, Analog sun sensor measurement correction using deep neural network, vol. 211, pp.808-817, DOI: 10.1016/j.actaastro.2023.07.013

Books

B1. C. Hajiyev, H.E. Soken and Y. Vural, "State Estimation and Control of Low-Cost Unmanned Aerial Vehicles," Springer International Publishing, Switzerland, 2015. ISBN eBook: 978-3-319-16417-5, ISBN Hardcover: 978-3-319-16416-8

B2. C. Hajiyev and H.E. Soken, "Fault Tolerant Attitude Estimation for Small Satellites," CRC Press, US, 2021. ISBN eBook: 9781351248839, ISBN Hardcover: 9780815369813

Book Chapters

BC1. C. Hajiyev and H.E. Soken, "Robust Self-adaptive Kalman Filter with the R and Q Adaptations against Sensor/Actuator Failures" in "Self-organization: Theories and Methods (Ed. W. Zhang)", Nova Science Publishers, New York USA, 2013.

BC2. H.E. Soken, C. Hajiyev and S. Sakai, "Robust Kalman Filtering with Single and Multiple Scale Factors for Small Satellite Attitude Estimation" in "Advances in Estimation, Navigation, and Spacecraft Control (Eds. D. Choukroun, Y. Oshman, J. Thienel and M. Idan)", pp. 391-411, Springer, New York, 2015. DOI: 10.1007/978-3-662-44785-7_21

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