

## Res. Asst. PhD DEMET ÇILDEN GÜLER

### Personal Information

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### Education Information

Doctorate, Istanbul Technical University, Lisansüstü Eğitim Enstitüsü, Uçak Ve Uzay Mühendisliği, Turkey 2016 - 2021

Postgraduate, İstanbul Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Uçak Ve Uzay Mühendisliği, Turkey 2014 - 2016

Undergraduate, İstanbul Teknik Üniversitesi, Uçak Ve Uzay Bilimleri Fakültesi, Uzay Mühendisliği, Turkey 2009 - 2014

### Research Areas

Aeronautical and Space Engineering, Space Engineering, Engineering and Technology

### Academic Titles / Tasks

Research Assistant, Istanbul Medeniyet University, Faculty Of Engineering And Natural Sciences , Space Engineering , 2014 - Continues

Researcher, University of Colorado at Boulder, College of Engineering and Applied Science, Aerospace Engineering Sciences Department, 2019 - 2020

Research Assistant, Istanbul Technical University, Uçak Ve Uzay Bilimleri, Uzay Mühendisliği, 2015 - 2018

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

- I. **Geomagnetic disturbance effects on satellite attitude estimation**  
Cilden-Guler D., Kaymaz Z., Hajiyev C.  
ACTA ASTRONAUTICA, vol.180, pp.701-712, 2021 (Journal Indexed in SCI)
- II. **Integration of barometric and GPS altimeters via adaptive data fusion algorithm**  
Hacızade C., Hacızade U., Cilden-Guler D.  
INTERNATIONAL JOURNAL OF ADAPTIVE CONTROL AND SIGNAL PROCESSING, vol.35, no.1, pp.2-14, 2021  
(Journal Indexed in SCI)
- III. **Attitude Estimation with Albedo Interference on Sun Sensor Measurements**  
Cilden-Guler D., Schaub H., Hajiyev C., Kaymaz Z.  
JOURNAL OF SPACECRAFT AND ROCKETS, vol.58, no.1, pp.148-163, 2021 (Journal Indexed in SCI)
- IV. **Two-Stage Kalman Filter for Fault Tolerant Estimation of Wind Speed and UAV Flight Parameters**  
Hajiyev C., Cilden-Guler D., Hacızade U.  
MEASUREMENT SCIENCE REVIEW, vol.20, no.1, pp.35-42, 2020 (Journal Indexed in SCI)
- V. **Nanosatellite attitude estimation using Kalman-type filters with non-Gaussian noise**  
Cilden-Guler D., Raitoharju M., Piche R., Hajiyev C.  
Aerospace Science and Technology, vol.92, pp.66-76, 2019 (Journal Indexed in SCI)
- VI. **Nontraditional Attitude Filtering with Simultaneous Process and Measurement Covariance Adaptation**

- Hajiyev C., Soken H. E. , Cilden-Guler D.  
 JOURNAL OF AEROSPACE ENGINEERING, vol.32, no.5, 2019 (Journal Indexed in SCI)
- VII. **SVD-aided EKF attitude estimation with UD factorized measurement noise covariance**  
 Cilden-Guler D., Hajiyev C.  
 ASIAN JOURNAL OF CONTROL, vol.21, no.4, pp.1423-1432, 2019 (Journal Indexed in SCI)
- VIII. **Evaluation of geomagnetic field models using magnetometer measurements for satellite attitude determination system at low earth orbits: Case studies**  
 Cilden-Guler D., Kaymaz Z., Hajiyev C.  
 ADVANCES IN SPACE RESEARCH, vol.61, no.1, pp.513-529, 2018 (Journal Indexed in SCI)
- IX. **SINGLE-FRAME ATTITUDE DETERMINATION METHODS FOR NANOSATELLITES**  
 Cilden Guler D., Conguroglu E. S. , Hajiyev C.  
 METROLOGY AND MEASUREMENT SYSTEMS, vol.24, no.2, pp.313-324, 2017 (Journal Indexed in SCI)
- X. **Review on gyroless attitude determination methods for small satellites**  
 Hajiyev C., Cilden Guler D.  
 PROGRESS IN AEROSPACE SCIENCES, vol.90, pp.54-66, 2017 (Journal Indexed in SCI)
- XI. **NANOSATELLITE ATTITUDE ESTIMATION FROM VECTOR MEASUREMENTS USING SVD-AIDED UKF ALGORITHM**  
 Cilden D., SOKEN H. E. , Hajiyev C.  
 METROLOGY AND MEASUREMENT SYSTEMS, vol.24, no.1, pp.113-125, 2017 (Journal Indexed in SCI)
- XII. **Gyro-free attitude and rate estimation for a small satellite using SVD and EKF**  
 Hajiyev C., Cilden D., SOMOV Y.  
 AEROSPACE SCIENCE AND TECHNOLOGY, vol.55, pp.324-331, 2016 (Journal Indexed in SCI)

## Articles Published in Other Journals

- I. **Fault tolerant control of attitude dynamics of nanosatellites**  
 Cilden-Guler D., Hajiyev C., Dasdemir J.  
 INTERNATIONAL JOURNAL OF SUSTAINABLE AVIATION, vol.4, no.2, pp.99-113, 2018 (Journal Indexed in ESCI)
- II. **Singular value decomposition based satellite attitude determination using different sensor configurations**  
 Guler D., Hajiyev C.  
 International Journal of Metrology and Quality Engineering, vol.8, 2017 (Refereed Journals of Other Institutions)

## Refereed Congress / Symposium Publications in Proceedings

- I. **Are External Magnetic Disturbances Suppressed by Magnetometer Noise when Estimating a Nanosatellite's Rotational Motion?**  
 Cilden-Guler D., Kaymaz Z., Hajiyev C.  
 21st IFAC World Congress on Automatic Control - Meeting Societal Challenges, ELECTR NETWORK, 11 - 17 July 2020, vol.53, pp.14888-14893
- II. **Assessment of Magnetic Storm Effects under Various Magnetometer Noise Levels for Satellite Attitude Estimation**  
 Cilden-Guler D., Kaymaz Z., Hajiyev C.  
 9th International Conference on Recent Advances in Space Technologies (RAST), İstanbul, Turkey, 11 - 14 June 2019, pp.769-773
- III. **Data Fusion for Integrated Baro/GPS Altimeter**  
 Hajiyev C., Hacizade U., Cilden-Guler D.  
 9th International Conference on Recent Advances in Space Technologies (RAST), İstanbul, Turkey, 11 - 14 June 2019, pp.881-885

- IV. **Two-Stage Kalman Filter for Estimation of Wind Speed and UAV Flight Parameters Based on GPS/INS and Pitot Tube Measurements**  
Hajiyev C., Cilden-Guler D., Hacizade U.  
9th International Conference on Recent Advances in Space Technologies (RAST), İstanbul, Turkey, 11 - 14 June 2019, pp.875-880
- V. **EKF for Wind Speed Estimation and Sensor Fault Detection Using Pitot Tube Measurements**  
Hajiyev C., Guler D., Hacizade U.  
9th International Conference on Recent Advances in Space Technologies (RAST), İstanbul, Turkey, 11 - 14 June 2019, pp.887-893
- VI. **Gyroless Nanosatellite Attitude Estimation in Loss of Sun Sensor Measurements**  
Hajiyev C., Cilden-Guler D.  
18th International-Federation-of-Automatic-Control (IFAC) Conference on Technology, Culture and International Stability (TECIS), Baku, Azerbaijan, 13 - 15 September 2018, vol.51, pp.89-94
- VII. **UD Factorization Based Non-Traditional Attitude Estimation of Nanosatellite with Rate Gyros FDI**  
Cilden-Guler D., Hajiyev C.  
18th International-Federation-of-Automatic-Control (IFAC) Conference on Technology, Culture and International Stability (TECIS), Baku, Azerbaijan, 13 - 15 September 2018, vol.51, pp.95-100
- VIII. **Integrated SVD/EKF attitude estimation with UD factorization of the measurement noise covariance**  
Guler D., Hajiyev C.  
8th International Conference on Recent Advances in Space Technologies, RAST 2017, İstanbul, Turkey, 19 - 22 June 2017, pp.343-348
- IX. **Geomagnetic models at low earth orbit and their use in attitude determination**  
Guler D., Kaymaz Z., Hajiyev C.  
8th International Conference on Recent Advances in Space Technologies, RAST 2017, İstanbul, Turkey, 19 - 22 June 2017, pp.301-305
- X. **Nontraditional UKF based nanosatellite attitude estimation with the process and measurement noise covariances adaptation**  
Hajiyev C., Guler D., Soken H. E.  
8th International Conference on Recent Advances in Space Technologies, RAST 2017, İstanbul, Turkey, 19 - 22 June 2017, pp.381-386
- XI. **Attitude Determination of Nanosatellites in the Sun-Eclipse Phases**  
Hajiyev C., Cilden-Guler D., Somov Y.  
8th International Conference on Recent Advances in Space Technologies (RAST), İstanbul, Turkey, 19 - 22 June 2017, pp.397-401
- XII. **Integrated SVD/EKF for small satellite attitude determination and rate gyro bias estimation**  
Hajiyev C., Cilden D., Somov Y.  
1st IFAC Workshop on Advanced Control and Navigation for Autonomous Aerospace Vehicles, ACNAAV 2015, Sevilla, Spain, 10 - 12 June 2015, vol.28, pp.233-238
- XIII. **Gyroless Attitude and Rate Estimation of Small Satellites Using Singular Value Decomposition and Extended Kalman Filter**  
Hajiyev C., Cilden D., Somov Y.  
16th International Carpathian Control Conference (ICCC), Miskolc, Hungary, 27 - 30 May 2015, pp.159-164
- XIV. **Comparison of Geomagnetic Field from Models and Satellite Observations for Attitude Determination Purposes**  
Cilden D., Kaymaz Z., Hajiyev C.  
7th International Conference on Recent Advances in Space Technologies (RAST), İstanbul, Turkey, 16 - 19 June 2015, pp.483-487
- XV. **Extraterrestrial Magnetic Field Effects on Attitude Determination Accuracy of Small Satellites**  
Cilden D., Kaymaz Z., Hajiyev C.  
7th International Conference on Recent Advances in Space Technologies (RAST), İstanbul, Turkey, 16 - 19 June 2015, pp.707-711

**XVI. Attitude and Attitude Rate Estimation for a Nanosatellite Using SVD and UKF**

Cilden D., Hajiyev C., Soken H. E.

7th International Conference on Recent Advances in Space Technologies (RAST), İstanbul, Turkey, 16 - 19 June 2015, pp.695-700

**XVII. Covariance Analysis of Three-Axis Attitude Determination Using Two Vector Measurements**

Cilden D., Conguroglu E. S., Hajiyev C.

7th International Conference on Recent Advances in Space Technologies (RAST), İstanbul, Turkey, 16 - 19 June 2015, pp.701-706

## Supported Projects

Çilden Güler D., Hacızade C., Kaymaz Z., TUBITAK Project, Development of Albedo Module for Open Source Astrodynamics Software, 2021 - 2022

TUBITAK Project, Küçük Enformasyon Uyduların Tümüleştirilmiş Yönelme Belirleme Sistemleri, Yörüngede Sensor Kalibrasyonu, Uzun Süreli Güdüm Ve Arıza Toleranslı Yönelme Kontrolü İçin Yöntemler Ve Algoritmalar Geliştirilmesi, 2014 - 2016

## Citations

Total Citations (WOS):90

h-index (WOS):5

## Awards

Çilden Güler D., Best Oral Presentation Award, 9Th International Conference On Mechanical And Aerospace Engineering, July 2018

Çilden Güler D., Amelia Earhart Fellowship Award, Zonta International, June 2018

ÇILDEN GÜLER D., En İyi Bildiri Ödülü: "Attitude and Attitude Rate Estimation for a Nanosatellite Using SVD and UKF", 7th International Conference on Recent Advances in Space Technologies-RAST, June 2015