



<b>Name</b>	Anna TOPCHYI
<b>Position, Department/Faculty</b>	Assistant, Department of Geoinformation Technologies and Earth Space Monitoring, Faculty of Rocket and Space Engineering
<b>Academic Degree, Academic Title</b>	
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<b>Scopus Author ID:</b>	57220834585
<b>Web of Science ResearcherID:</b>	AEZ-1548-2022
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<b>Google Scholar:</b>	BCeQ96wAAAAJ
<b>ResearchGate:</b>	Anna-Topchiy

## EDUCATION:

### Basic education (university, major, year of graduation):

National Aerospace University "Kharkiv Aviation Institute" - Department of geoinformation technologies and space monitoring of the Earth.

[2013-2017] Bachelor's Degree. Qualification: Junior engineer in geodesy, cartography and land management.

### Postgraduate/Doctoral studies:

National Aerospace University "Kharkiv Aviation Institute"

[2017-2019] Master's Degree - with honors. Qualification: Geoinformatics engineer.

[2019-2022] Doctoral studies (PhD).

## WORK EXPERIENCE:

### Professional Career (Workplace, Years, Position):

National Aerospace University "Kharkiv Aviation Institute"

Department of geoinformation technologies and space monitoring of the Earth:

[2019 - Present] Department assistant

### Teaching Experience:

[2019 – Present] National Aerospace University "Kharkiv Aviation Institute"

### Experience in International or National Projects:

Here Technologies:

[2016 – 2017] • Laid the groundwork in geospatial data processing, visualization, and integration, mastering core GIS tools like ArcGIS Pro, QGIS to ensure seamless data management and high-quality outputs.

- Developed proficiency in database-driven geospatial analysis, managing and structuring large datasets to facilitate accurate, consistent, and accessible spatial information.
- Led complex mapping projects that required meticulous data processing and enhanced visualization techniques, producing detailed, high-quality maps to meet diverse client requirements.
- Pioneered data quality control initiatives, focusing on accuracy and consistency by

implementing rigorous data validation checks, significantly reducing error rates and improving data reliability for subsequent project stages.

- Collaborated closely with cross-functional teams on data acquisition, processing, and integration, establishing protocols that optimized data flow across departments and improved project turnaround times.

- Handled POI, addressing, traffic signs, road attributes, and network connectivity for navigation systems. Key datasets handled: POI, Traffic Signs, Functional Class, Speed Limits, Turn Restrictions, Access Restrictions, Admin Boundaries, Road Geometry, Z-levels, Hazmat/Truck Routing, Traffic Lights, Construction Zones.

## RESEARCH ACTIVITIES:

### Main Research Areas:

Photogrammetry, digital elevation modeling (DEM/DTM), 3D terrain modeling (TIN), GIS-based spatial analysis, geospatial data automation, remote sensing, large-scale QA/QC in geospatial datasets, Python-based GIS automation, enterprise GIS systems, web GIS technologies (ArcGIS Online), spatial databases and data management, cross-functional collaboration in geospatial projects, environmental and geographical modeling, technical documentation in GIS workflows, global-scale geospatial operations.

### Number of Publications (Scopus, WoS, others):

[5]

### Participation in Scientific Conferences:

1) Topchy, A. S. (2016). *Use of satellite images for monitoring of agricultural crop fields*. In Proceedings of the All-Ukrainian Scientific and Technical Conference “Integrated Computer Technologies in Mechanical Engineering” (ICTM 2016), Vol. 2 (pp. 233–234). Kharkiv, Ukraine.

2) Butenko, O. S., & Topchy, A. S. (2020). *Assessment of the environmental condition of the part of Ukraine bordering the eastern occupied territories*. In Modern Information Technologies in Environmental Safety Management, Nature Management, and Emergency Response: Trends of 2020. Proceedings of the 19th International Scientific and Practical Conference (pp. 138–141). Kyiv, Ukraine.

3) Butenko, O., Paschenko, R., Topchy, A., & Morushko, M. (2020). Analysis of the Earth’s surface type in remote sensing using fractal dimension. In 6th Microwaves, Radar and Remote Sensing Symposium (MRRS-2020), IEEE Ukrainian Microwave Week (UkrMW). <https://doi.org/10.1109/MRRS49601.2020.9244985>

4) Topchy, A. (2021). Assessment of pollution sources detected in the Ukrainian part of the Western Bug basin. In Scientific Horizon in the Context of Social Crises: Proceedings of the International Scientific Conference (pp. 226–227). Tokyo, Japan, November 25–26, 2021.

5) Shokot, V. O., & Topchy, A. S. (2024). Simulation of transport routes using mathematical methods. In Proceedings of the CXLIV International Internet Conference “Summer Scientific Gatherings — 2024”, June 14, 2024. Odesa, Ukraine.

6) Topchy, A., & Butenko, O. (2025). Application of GeoAI for water resource monitoring in Eastern Ukraine. In Modern Trends of Social Transformations of Society in Conditions of Sustainable Development: Proceedings of the VIII International Scientific and Practical Conference (pp. 214–216). Stockholm, Sweden, February 24–26, 2025.

7) Topchy, A., & Butenko, O. (2025). Smart forest monitoring based on artificial intelligence. In Scientific Research: Modern Innovations and Future Perspectives. Proceedings of the 3rd International Scientific and Practical Conference (pp. 120–122). Montreal, Canada, February 24–26, 2025.

## TEACHING ACTIVITIES:

### Methodological Materials, Textbooks:

1) Andriev, S. M., Nechausov, A. S., & Topchiy, A. S. (2024). GIS in Territorial Management: Textbook for Practical Classes. – Kharkiv: National Aerospace University named after M. E. Zhukovsky "Kharkiv Aviation Institute".

## SELECTED PUBLICATIONS:

### Key Articles (Scopus, WoS, others):

1) Topchiy, A., Andreev, S., & Zhilin, V. (2018). Methodology for applying computer vision libraries to construct cartographic models. *Navigation and Communication Control Systems*, (1)47, 3–7. Poltava, Ukraine.

2) Butenko, O., Gorelik, S., Topchiy, A., & Bryzhachenko, T. (2020). Assessment of the dynamics of environmental changes in Eastern Ukraine using the data of the Earth space monitoring. *Advanced Information Systems*, 4(1), 130–135.

<https://doi.org/10.20998/2522-9052.2020.1.20>

3) **Butenko, O., & Topchiy, A.** (2023). *Determination of factors of maximum influence on the occurrence of fires in conditions of limited a priori information in the war zone in the east of Ukraine*. *Geo&Bio*, 24, 166–172. National Academy of Sciences of Ukraine.

4) **Butenko, O., & Topchiy, A.** (2023). *Modeling fires based on the results of correlation analysis*. *Ukrainian Journal of Remote Sensing*, 10(3), 28–33. Kyiv, Ukraine.

5) **Butenko, O., & Topchiy, A.** (2023). *Analysis of pollutants in air within the territory of Ukraine using geostatistical method*. *Radioelectronic and Computer Systems*, (3)107, 226–237. Kharkiv, Ukraine.

### Links to Citation Database Profiles:

<https://www.researchgate.net/profile/Anna-Topchiy>

<https://scholar.google.com/citations?hl=uk&user=BCeQ96wAAAAJ>

<https://orcid.org/0000-0003-0448-4543>

<https://www.webofscience.com/wos/author/record/AEZ-1548-2022>

<https://www.scopus.com/authid/detail.uri?authorId=57220834585&eid=2-s2.0-85097711497>

## ADDITIONAL INFORMATION:

### IT Skills:

Geospatial data automation, large-scale QA/QC in geospatial datasets, Python-based GIS automation, enterprise GIS systems, web GIS technologies (ArcGIS Online), spatial databases and data management, global-scale geospatial operations.