

computational methods, i.e., Artificial Neural Networks or Machine Learning.

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REFERENCES

- [1] S. A. H. Mohsan, M. A. Khan, F. Noor, I. Ullah, and M. H. Alsharif, "Towards the Unmanned Aerial Vehicles (UAVs): A Comprehensive Review," *Drones*, vol. 6, no. 6, pp. 1–27, 2022, doi: 10.3390/drones6060147.
- [2] M. Yazid, A. Sari, Y. Mazwin, M. Hassim, R. Hidayat, and A. Ahmad, "Monitoring Rice Crop and Paddy Field Condition Using UAV RGB Imagery," *Int. J. Informatics Vis.*, vol. 5, no. December, pp. 469–474, 2021.
- [3] G. Tucci *et al.*, "Multi-sensor UAV application for thermal analysis on a dry-stone terraced vineyard in rural Tuscany landscape," *ISPRS Int. J. Geo-Information*, vol. 8, no. 2, 2019, doi: 10.3390/ijgi8020087.
- [4] M. Schaefer *et al.*, "Low-cost UAV surveys of hurricane damage in Dominica: automated processing with co-registration of pre-hurricane imagery for change analysis," *Nat. Hazards*, vol. 101, no. 3, pp. 755–784, 2020, doi: 10.1007/s11069-020-03893-1.
- [5] E. D. Wardihani *et al.*, "Real-time forest fire monitoring system using unmanned aerial vehicle," *J. Eng. Sci. Technol.*, vol. 13, no. 6, pp. 1587–1594, 2018.
- [6] H. N. M. Shah *et al.*, "Design and develop an autonomous UAV airship for indoor surveillance and monitoring applications," *Int. J. Informatics Vis.*, vol. 2, no. 1, pp. 1–7, 2018, doi: 10.30630/ijov.2.1.133.
- [7] J. Zhou, C. Ma, S. Dong, and M. Zhang, "Unconventional Prevention Strategies for Urban Public Transport in the COVID-19 Epidemic: Taking Ningbo City as a Case Study," *China J. Highw. Transp.*, no. 03, pp. 1–20, 2020, doi: 10.13140/RG.2.2.20856.06405.
- [8] J. Zhen, C. Chan, A. Schoonees, E. Apatu, L. Thabane, and T. Young, "Transmission of respiratory viruses when using public ground transport: A rapid review to inform public health recommendations during the COVID-19 pandemic," *South African Med. J.*, vol. 110, no. 6, pp. 478–483, 2020, doi: 10.7196/SAMJ.2020.v110i6.14751.
- [9] M. Deveci, N. Aydin, and A. O. Kusakci, "Managing Public Transport During COVID-19: An Analysis of The Impact and Preventive Response in Istanbul," *J. Nav. Sci. Eng.*, vol. 17, no. 1, pp. 77–102, 2021.
- [10] M. Z. Bazant and J. W. M. Bush, "A guideline to limit indoor airborne transmission of COVID-19," *Proc. Natl. Acad. Sci. U. S. A.*, vol. 118, no. 17, pp. 1–11, 2021, doi: 10.1073/pnas.2018995118.
- [11] A. Kumar, K. Sharma, H. Singh, S. G. Naugriya, S. S. Gill, and R. Buyya, "A drone-based networked system and methods for combating coronavirus disease (COVID-19) pandemic," *Futur. Gener. Comput. Syst.*, vol. 115, pp. 1–19, 2021, doi: 10.1016/j.future.2020.08.046.
- [12] V. Chamola, V. Hassija, V. Gupta, and M. Guizani, "A Comprehensive Review of the COVID-19 Pandemic and the Role of IoT, Drones, AI, Blockchain, and 5G in Managing Its Impact," *IEEE Access - Spec. Sect. Deep Learn. Algorithms Internet Med. Things Receiv.*, vol. 8, no. April, pp. 90225–90265, 2020, doi: 10.1109/ACCESS.2020.2992341.
- [13] Á. Restás, "Drone Applications Fighting COVID-19 Pandemic — Towards," *Drones*, vol. 6, no. 15, pp. 1–20, 2022, doi: 10.3390/drones6010015.
- [14] K. Yakushiji, H. Fujita, M. Murata, N. Hiroi, Y. Hamabe, and F. Yakushiji, "Short-Range Transportation Using Unmanned Aerial Vehicles (UAVs) during Disasters in Japan," *Drones*, vol. 4, no. 4, pp. 1–8, 2020, doi: 10.3390/drones4040068.
- [15] E. Yanmaz, S. Yahyanejad, B. Rinner, H. Hellwagner, and C. Bettstetter, "Drone networks: Communications, coordination, and sensing," *Ad Hoc Networks*, vol. 68, no. October, pp. 1–15, 2018, doi: 10.1016/j.adhoc.2017.09.001.
- [16] A. Gupta, S. Maurya, N. Mehra, and D. Kapil, "COVID-19: Employee Fever Detection with Thermal Camera Integrated with Attendance Management System," in *Proceedings of the Confluence 2021: 11th International Conference on Cloud Computing, Data Science and Engineering*, 2021, pp. 355–361, doi: 10.1109/Confluence51648.2021.9377079.
- [17] Q. G. Alexander and C. V. Lunderman, "Thermal Camera Reliability Study: FLIR One Pro," vol. 3, pp. 1–12, 2021.
- [18] T. Malmivirta *et al.*, "Hot or not? robust and accurate continuous thermal imaging on FLIR cameras," 2019, doi: 10.1109/PERCOM.2019.8767423.
- [19] J. H. Klaessens, A. van der Veen, and R. M. Verdaasdonk, "Comparison of the temperature accuracy between smart phone based and high-end thermal cameras using a temperature gradient phantom," *Des. Qual. Biomed. Technol. X*, vol. 10056, no. March 2017, p. 100560D, 2017, doi: 10.1117/12.2252898.
- [20] M. N. Mohammed, S. Halim, Hazairin, Nurul Aslamiah, Haki, Maryam, Al-Zubaidi, S., A. K. Sairah, and Y. Eddy, "Toward A Novel Design for Spray Disinfection System to Combat Coronavirus (Covid-19) Using IoT Based Drone Technology," *Rev. Argentina Clínica Psicológica*, vol. 29, no. 5, p. 240, 2020, doi: 10.37200/IJPR/V24I7/PR270220.
- [21] J. A. Pardo, W. G. Aguilar, and T. Toulkeridis, "Wireless communication system for the transmission of thermal images from a UAV," in *2017 CHILEAN Conference on Electrical, Electronics Engineering, Information and Communication Technologies, CHILECON 2017 - Proceedings*, 2017, no. October, pp. 1–5, doi: 10.1109/CHILECON.2017.8229690.
- [22] Z. Akhter, R. M. Bilal, K. Telegenov, E. Feron, and A. Shamim, "Indigenously Developed HD Video Transmission System for UAVs Employing a 3 × 3 MIMO Antenna System," *IEEE Open J. Antennas Propag.*, vol. 3, no. August, pp. 940–947, 2022, doi: 10.1109/OJAP.2022.3198289.
- [23] A. Kirimtat and O. Krejcar, *FLIR vs SEEK in Biomedical Applications of Infrared Thermography*, vol. 10814 LNBI. Springer International Publishing, 2018.
- [24] A. Somboonkaew *et al.*, "Mobile-platform for automatic fever screening system based on infrared forehead temperature," *2017 Opto-Electronics Commun. Conf. OECC 2017 Photonics Glob. Conf. PGC 2017*, vol. 2017-Novem, no. July, pp. 1–4, 2017, doi: 10.1109/OECC.2017.8114910.
- [25] N. K. Singh, P. Muthukrishnan, and S. Sanpini, *Industrial System Engineering for Drones: A Guide with Best Practices for Designing*, Technology. Bangalore, India: Apress, 2019.
- [26] Q. Yang and J. H. Yang, "HD video transmission of multi-rotor Unmanned Aerial Vehicle based on 5G cellular communication network," *Comput. Commun.*, vol. 160, no. June, pp. 688–696, 2020, doi: 10.1016/j.comcom.2020.07.024.
- [27] T. Tichý, D. Švorc, M. Růžička, and Z. Bělinová, "Thermal feature detection of vehicle categories in the urban area," *Sustain.*, vol. 13, no. 12, 2021, doi: 10.3390/su13126873.
- [28] E. Gutierrez, B. Castañeda, and S. Treuillet, "Correction of Temperature Estimated from a Low-Cost Handheld Infrared Camera for Clinical Monitoring," in *Advanced Concepts for Intelligent Vision Systems: 20th International Conference (ACIVS 2020)*, 2020, no. February 2020, pp. 108–116, doi: 10.1007/978-3-030-40605-9_10.
- [29] Á. Restás, I. Szalkai, and G. Óvári, "Drone application for spraying disinfection liquid fighting against the covid-19 pandemic—examining drone-related parameters influencing effectiveness," *Drones*, vol. 5, no. 3, 2021, doi: 10.3390/drones5030058.
- [30] M. Daza, D. Barrios-Aranibar, J. Diaz-Amado, Y. Cardinale, and J. Vilasboas, "An approach of social navigation based on proxemics for crowded environments of humans and robots," *Micromachines*, vol. 12, no. 2, pp. 1–25, 2021, doi: 10.3390/mi12020193.