

Assessment of Drone Noise Perception

Introduction

The number of operations of Unmanned Aerial Vehicles (UAV), commonly referred to as “drones,” has strongly increased in the past decade and will scale up in the future. Therefore, drones are becoming a growing new source of environmental noise pollution, and annoyance reactions to drone noise are likely to occur in a substantial portion of the communities. Drone noise is likely to be substantially more annoying than road traffic or aircraft noise due to special acoustic characteristics such as pure tones and high-frequency broadband noise. Therefore, the noise emissions of UAVs is likely to be one of the key challenges for the social acceptance of drones and their widespread in urban context.

Expected outcome of the thesis

Systematic review of the state-of-the-art approaches for assessing the impact of drone generated noise on people. The review should aim at giving an overview on (i) measurement and evaluation practices, (ii) noise impact on humans and subsequent perception/acceptance of drone noise, (iii) highlight current gaps in the literature and inform future trends.

A few References

- Ivošević, J.; Ganić, E.; Petošić, A.; Radišić, T. **Comparative UAV Noise-Impact Assessments through Survey and Noise Measurements**. *Int. J. Environ. Res. Public Health* 2021, *18*, 6202.
- Antonio J Torija Martinez, Zhengguang Li. **Metrics for Assessing the Perception of Drone Noise**. Forum Acusticum, Dec 2020, Lyon, France. pp.3163-3168, (10.48465/fa.2020.0018).
- Torija, A.J.; Nicholls, R.K. **Investigation of Metrics for Assessing Human Response to Drone Noise**. *International Journal of Environmental Research and Public Health* 2022, *19*, 3152.
- Alkmim, M., Cardenuto, J., Tengan, E., Dietzen, T., van Waterschoot, T., Cuenca, J., De Ryck, L., & Desmet, W. **Drone noise directivity and psychoacoustic evaluation using a hemispherical microphone array**. *The Journal of the Acoustical Society of America* 2022, *152* 5, 2735.
- Torija, A.J.; Clark, C. **A Psychoacoustic Approach to Building Knowledge about Human Response to Noise of Unmanned Aerial Vehicles**. *International Journal of Environmental Research and Public Health* 2021, *18*, 682