

The Identification of The Breach of Short-term Rental Regulations in Irish Rent Pressure Zones

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The housing crisis in Ireland has grown in recent years. In order to make a greater profit, many landlords are no longer renting out their homes under long term tenancies, but under short-term tenancies. The shift from long-term to short-term rentals has had a negative impact on the supply of private housing rentals. How to regulate those rentals that are in rent pressure zones with the highest and rising rents is becoming a tricky issue.

In this paper, we develop a breach identifier to check short-term rentals located in rent pressure zones with potential breaches using only publicly available data from Airbnb. First, we use the residual neural network to filter out outdoor photos which have an impact on identifying whether an owner has multiple rentals located in a rent pressure zone. Second, we use the Siamese neural network to compare the similarity of indoor photos to determine if multiple rental posts correspond to the same residence. Next, the Haversine algorithm is used to locate short-term rentals within a circle centered on the coordinate of a permit. Short-term rentals with a permit will not be restricted. Finally, we enhance the occupancy estimation model combined with sentiment analysis, which may provide higher accuracy.

Because Airbnb does not disclose accurate house coordinates and occupancy data, it is not possible to verify the accuracy of breach identifier. The accuracy of occupancy estimator cannot be verified either. It only provides an estimate within a reasonable range. Users should be somewhat skeptical of short-term rentals that are flagged as possible breaches.