Evaluation of Rent Prediction Models using Floor Plan Images

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In the real estate rental property, there are almost no properties with the same attributes.
Property attributes have a strong impact on prices, so a high level of expertise is needed to determine prices. Hedonic approach is used to support rent determination.
However, this method using only property attributes and this method does not consider the floor plan images (FPIs).
Even if the layout type is the same, there are also different types of floor layouts, and in Japan there is a custom to look at FPI when searching for a desired rental property in many cases.
Therefore, it is expected that FPI affects the rent, so it is important to clarify how the FPI affects the rent in the rent of the rental property.

This study constructs rent prediction models with/without FPIs in order to validate whether such images contribute the prediction accuracy, in order to clarify the influence that a floor plan has on rents.

In the experimental results, the root mean squared error values of the prediction model with PCA for FPIs tend to be higher than without FPIs. Moreover, prediction rent model with PCA for FPIs improve accuracy by extracting the feature quantities of FPI with 1024 and 2048 dimensions.

These suggests that the use of FPI contributes to accuracy of rent prediction.

In future, we expand the dataset.

Keywords: Rental house, Prediction rental house price; House layout, General linear regression model