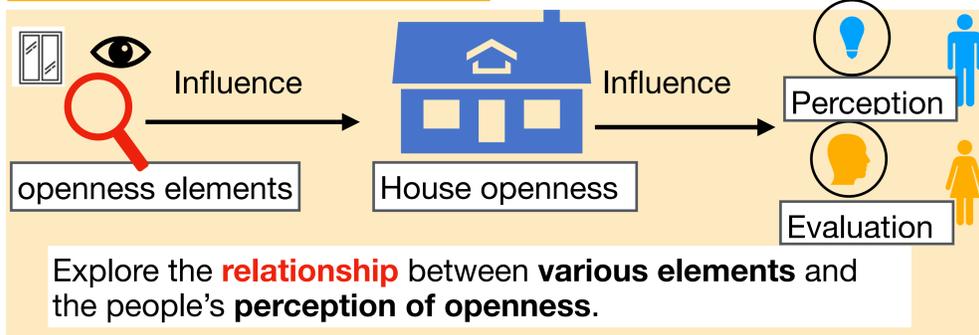


S08 Assessing the “Openness” of Real Estate Properties based on Diverse Perspectives

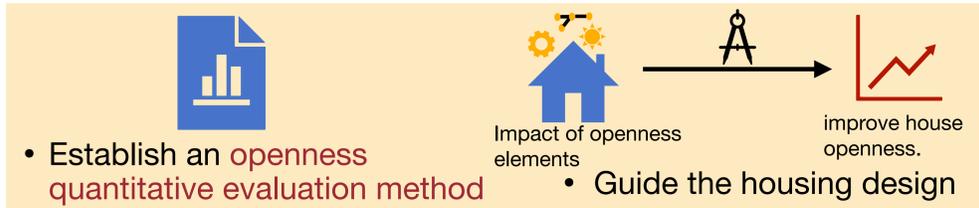
Yuan Liu, Takuya Oki (Institute of Science Tokyo)

Overview:

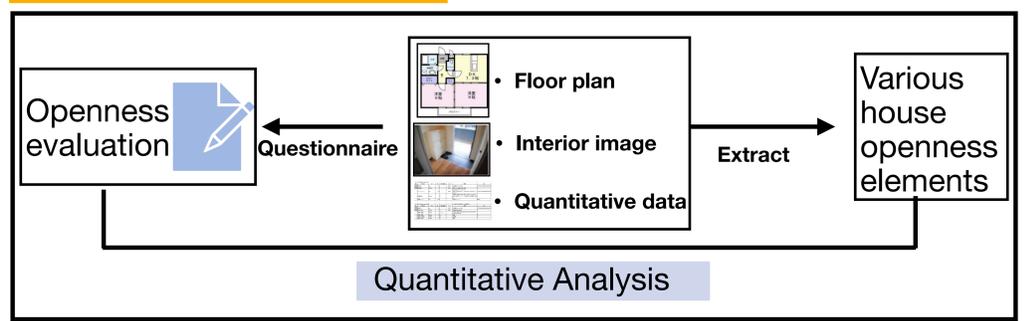
Research background:



Research purpose:



Research structure:



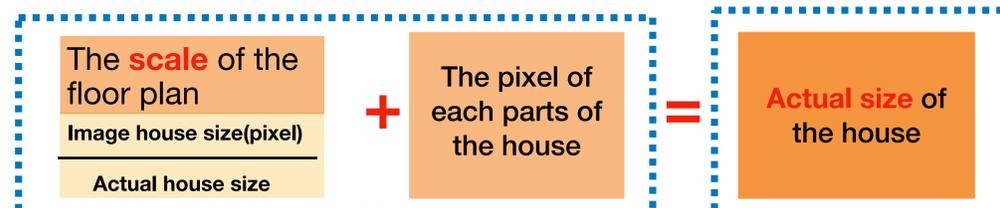
Data:

- Provided by the National Institute of Informatics in collaboration with LIFULL Co., Ltd.,
- LIFULL HOME'S real estate website
- Amount: 5.33 million properties
- Contains detailed information (Image and description)

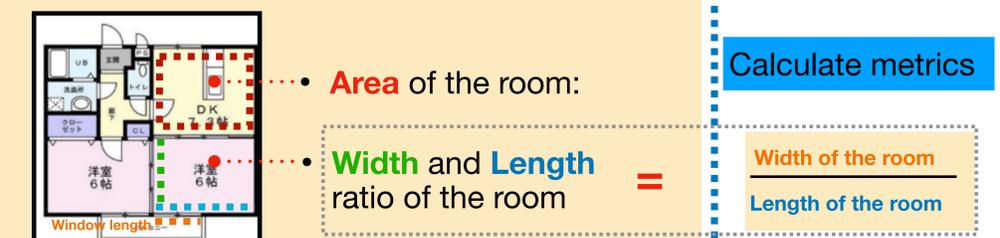
House openness elements:

Quantitative Method:

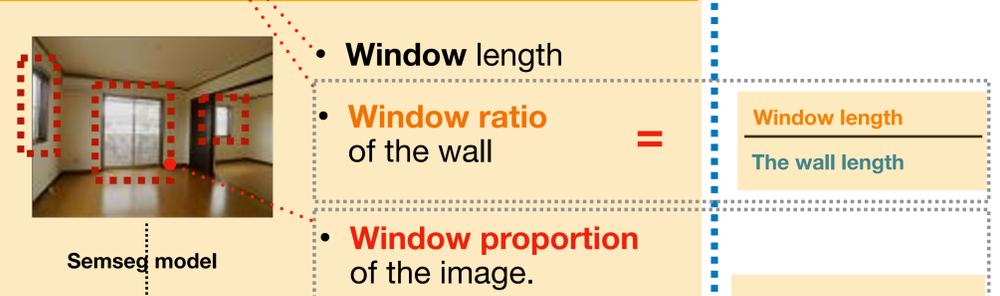
Extracting the **various Openness elements metric** by using the **Semantic segmentation model** and **Image processing techniques** based on **floor plan**, **interior image** and **quantitative data**.



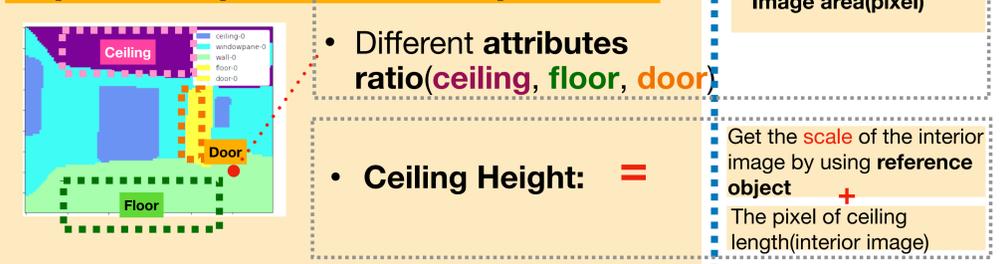
Aspect 1: Room size-based openness



Aspect 2: Window-based openness



Aspect 3: Spatial-based Openness

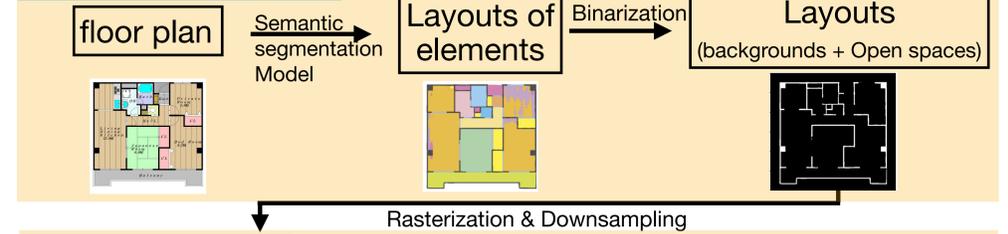


Aspect 4: Structural-based openness:

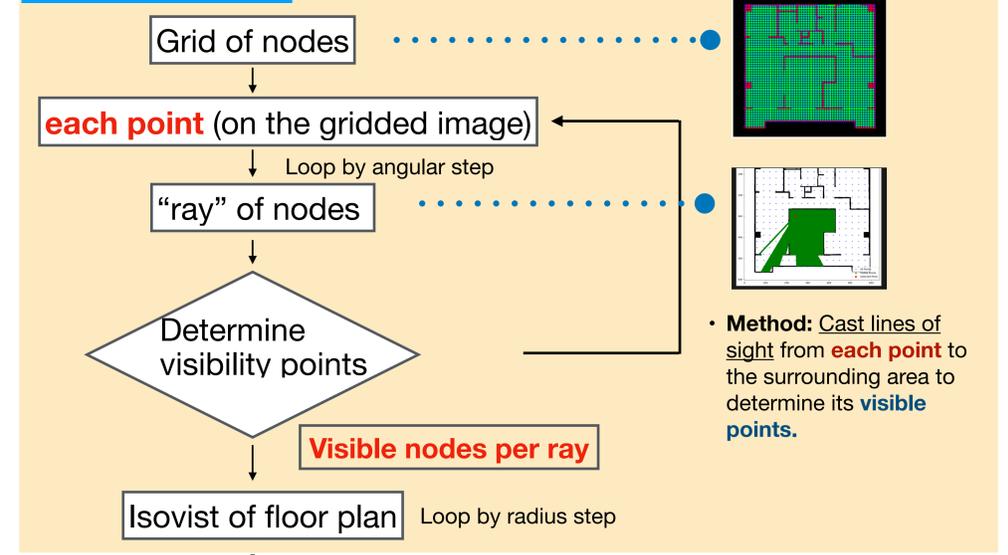
Visibility Graph analysis(VGA)

What's this Analyzing the **visual connectivity** between points within a space → Study → Impact of **spatial configuration** on human **behavior** and **cognition**

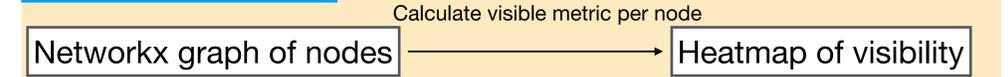
Processing the raw data



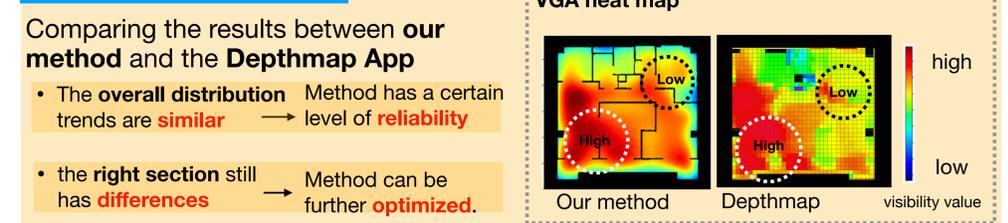
Calculate the isovist



Visibility Graph analysis



Validate the VGA results



Application:

- Automate the **quantitative evaluation of housing openness** and integrate the results into AI recommendation algorithms to help **homebuyers quickly filter properties** that match their preferences.
- Openness affects living comfort, and good spatial design promotes mental health. Scientific evaluation of property openness can **enhance awareness of the relationship between space and health**.
- Utilize openness evaluations to **optimize floor plan design**, enhance the living experience, and increase property appeal and sales rates.