专业外语
Professional English in Architecture

李韵琴
南昌大学建筑与设计学院

2023年5月4日

南昌大学
NanChang University

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《专业外语》教学大纲

1. 课程概论(3月2日)
2. 建筑学专业词汇 (3月9日)
3. 视听训练 (3月16日)
4. 视听训练(3月23日)
5. 专业文献精读 (3月30日)
6. 专业文献精读(4月6日)
7. 专业文献精读(4月13日)
8. 科技论文写作技巧(4月20日)
9. 科技论文写作技巧(4月27日)
10. 口语表达技巧(5月4日)
11. 互动作业汇报(5月11日)
12. 课程总结(5月18日)

中期互动作业

“案例分析”互动作业

Group Presentation

- 单个建筑或城市案例，尺度不限

- 分组：5-6人
- 作业内容：

1. 分析报告：每组英文word文档一份，**5月11日上交纸质版**

2. PPT汇报：**5月11日**按组进行英文汇报，不超过5分钟，人数不限，至少1人

word文档及PPT文档**5月10日21:00前**发送至邮箱liyunqin@ncu.edu.cn,

文件名格式：组号-小组成员姓名

Presentation Group List

- 第一组： 李新妍（建筑 201 班） 黄怡莹（建筑 201 班） 徐欣（建筑 202 班） 刘姿（城规 201 班） 丁玉婷（城规 201 班） 王冬旭（城规 201 班）
- 第二组:邢梦瑶（建筑 201 班） 邹杰（建筑 201 班） 欧阳飞雪（建筑 201 班） 罗明婵（建筑 201 班） 黄天乐（建筑 201 班）
- 第三组:黄启航（建筑 201 班） 朱祖玮（建筑 201 班） 郭嘉（建筑 201 班） 刘铭（建筑 201 班） 杨功奇（建筑 201 班） 舒圣洋（建筑 201 班）
- 第四组：袁钰霖（建筑 201 班） 张宇涵（建筑 201 班） 袁金发（建筑 201 班） 饶洋（建筑 202） 何福涛（建筑 202） 聂龙龙（建筑 202）
- 第五组：郭雯茜（建筑 201 班） 杨行（建筑 201 班） 孙文辉（建筑 201 班） 沈欣彤（建筑 201 班） 杨馨语（建筑 202） 韩雨松（建筑 202）
- 第六组：许位鸿（建筑 201 班） 徐佳丽（建筑 201 班） 彭宅镜（建筑 201 班） 丁一平（建筑 201 班） 张新艳（建筑 201 班） 莫逸欣（城规 201 班）
- 第七组：肖恺（建筑 201 班） 杨威（建筑 201 班） 梁志勇（建筑 201 班） 万凌骏（建筑 201 班） 尹志文（城规 201 班）
- 第八组 :周章瑜（建筑 201 班） 张玉罡（建筑 202)徐诗哲 （城规 201 班）
- 戴玉立（城规 201 班）谭礼聪（城规 201 班）王孟谦（城规 201 班）
- 第九组 :甘露（建筑 201 班） 甘欣磊（建筑 201 班） 祖瑞（建筑 201 班） 陈彦芝（建筑 202）姜婷蔓（建筑 202） 宋雨萱（城规 201 班）
- 第十组 :谢非含（建筑 201 班） 卢听雨（建筑 202）罗子玥（建筑 202）张雨澄（建筑 202） 杨琪琛（建筑 202）
- 第十一组：连海鸿（建筑 201 班） 刘远樵（建筑 202）戚睿（建筑 202）郭天羽（建筑 202）
- 第十二组：周雷恩（建筑 201 班）
- 第十三组：傅诗婕（建筑 202 班） 杨心驰（建筑 202 班） 刘名一（城规 201 班） 罗嘉祺（城规 201 班） 郑硕鹏（建筑 202 班）
- 第十四组：许潇文（建筑 202 班） 王宇（建筑 202 班） 李本俊（建筑 202 班） 高晓珊（建筑 202 班） 陈家琪（建筑 202 班） 吴欣遥（建筑 202 班）
- 第十五组 :张伟功（建筑 202 班） 何武（建筑 202 班） 王霖（建筑 202 班） 张黄文旭（建筑 202 班） 何邦楠（建筑 202 班） 冯子凌（建筑 202 班）
- 第十六组：贾伦轩（建筑 202 班） 罗馨（建筑 202 班） 刘思语（建筑 202 班） 彭震宇（建筑 202 班） 梁博（建筑 202 班）
- 第十七组：王佳瑶（城规 201 班） 童凌敏（城规 201 班） 刘涵（城规 201 班） 于家浩（城规 201 班） 姜骏以（城规 201 班） 汪高宇（城规 201 班）
- 许文捷（城规 201 班）

中期互动作业

- 招募：主持人一名
- 要求：

1 会英文

2 会计时

3 声音大

请有意向的同学与我联系。

口语表达技巧

第十讲

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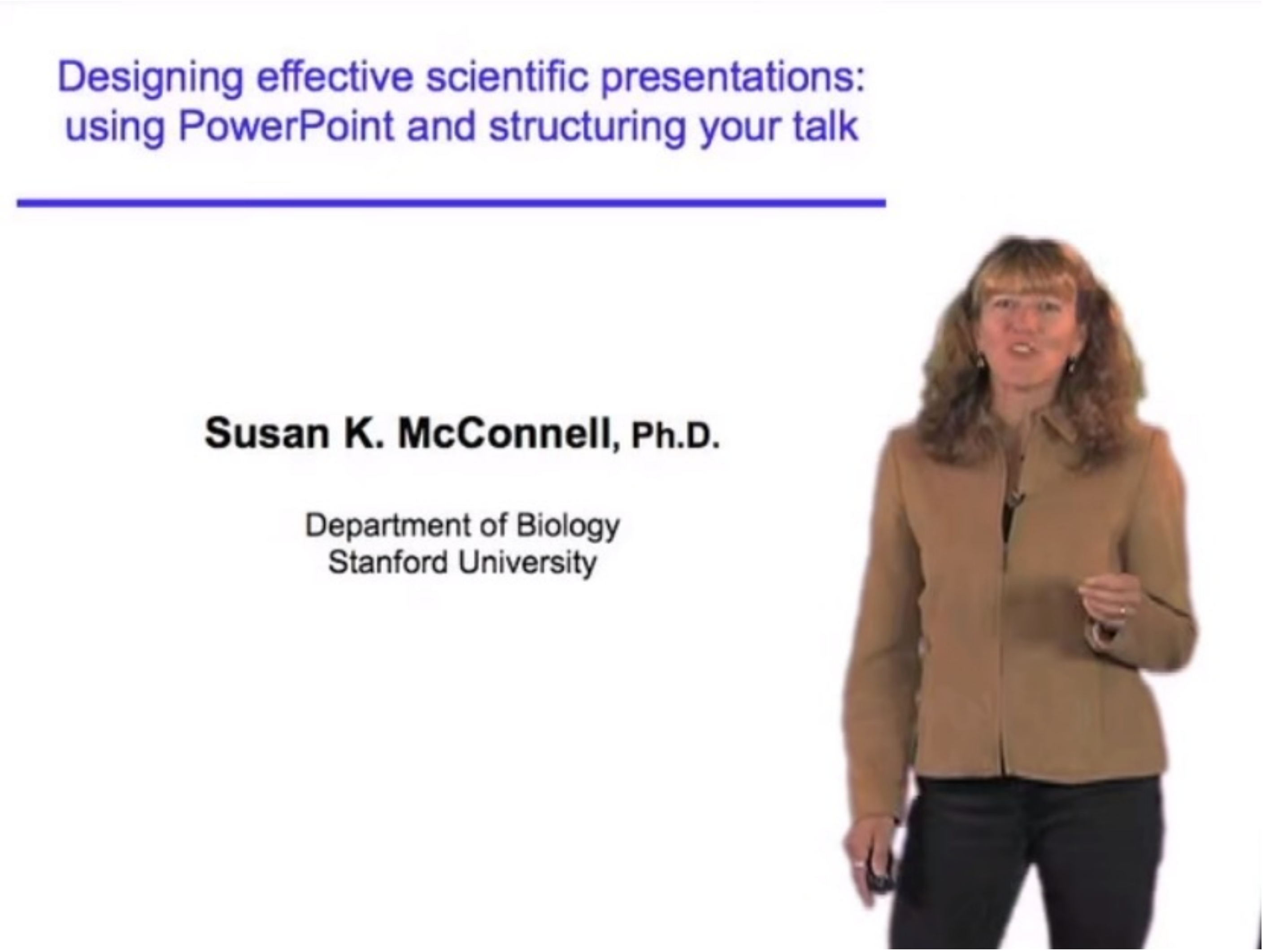
How to make a presentation in english

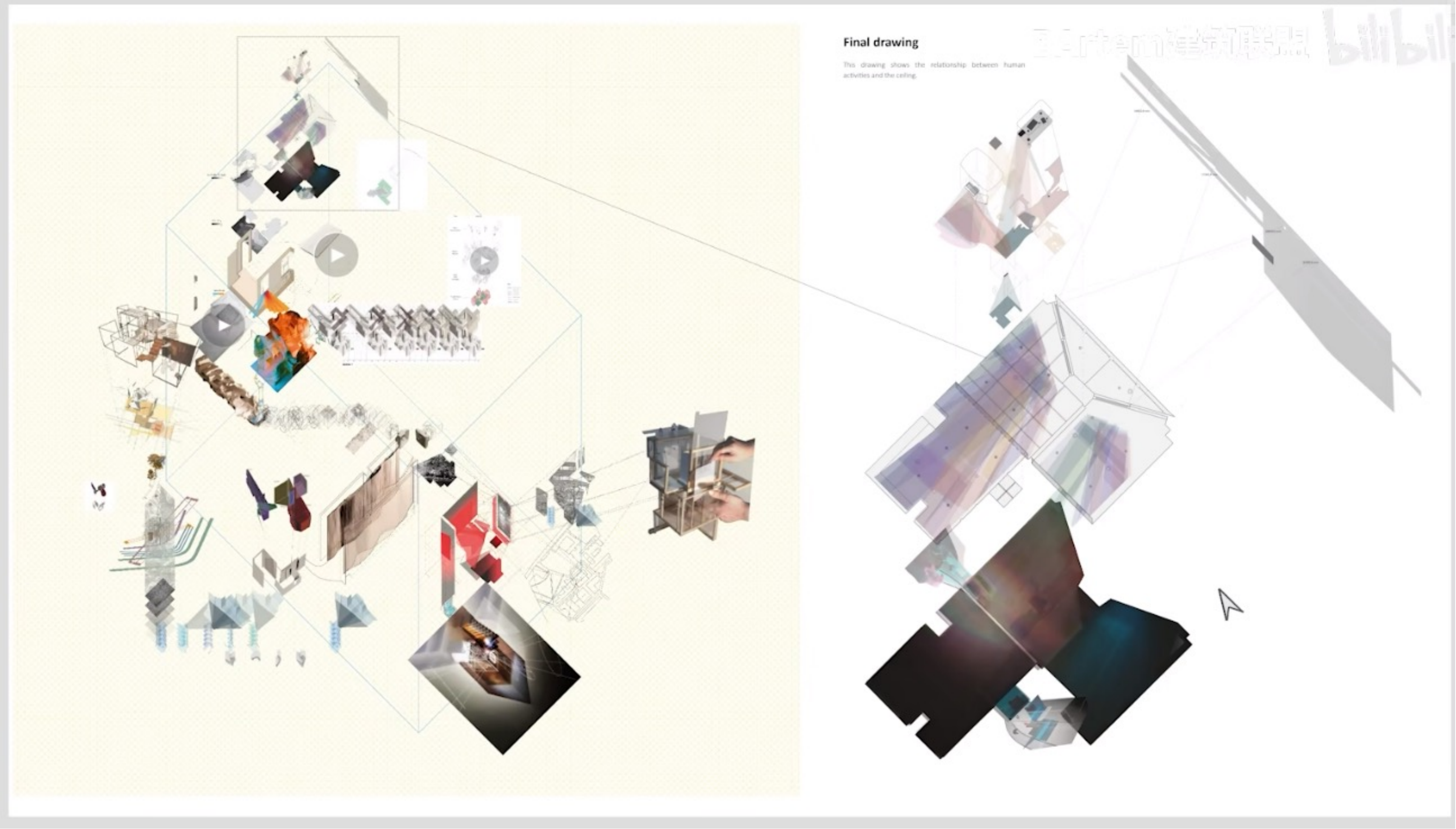
Designing effective scientific presentation



PPT制作

- 页面比例：建议**4:3**
- 汇报时间 vs PPT页数：5min vs 4-10页
- 页码
- 避免语速过快
- 避免在PPT中出现大段文字

Presentation example of a project



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Presentation example of a paper

Sustainable Cities and Society 86 (2022) 104140

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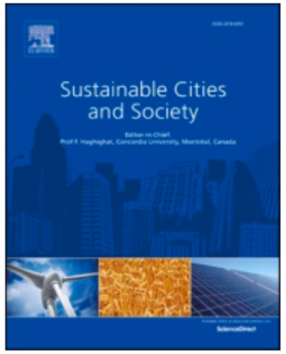
Contents lists available at ScienceDirect

Sustainable Cities and Society

journal homepage: www.elsevier.com/locate/scs



Check for updates

Measuring visual walkability perception using panoramic street view images, virtual reality, and deep learning

Yunqin Li, Nobuyoshi Yabuki *, Tomohiro Fukuda

Division of Sustainable Energy and Environmental Engineering, Graduate School of Engineering, Osaka University, Japan

Overview

- Research objectives:
- propose a VR-based pairwise comparison approach for VWP scoring in six categories, namely, walkability, feasibility, accessibility, safety, comfort, and pleasurability.
- design a VWP classification deep multitask learning (VWPCL) model with a tailored dataset.
- use a stepwise multiple linear regression model to analyze the relationship between object ratios and VWP scores obtained by semantic segmentation of panoramic SVIs from a macroscale perspective.
- visualize the objects contributing to the VWP evaluation using interpretable deep learning from a microscale perspective.
- validate the effectiveness of the VWPCL model and its interpretable deep learning results.

1 Materials and method (1/8)

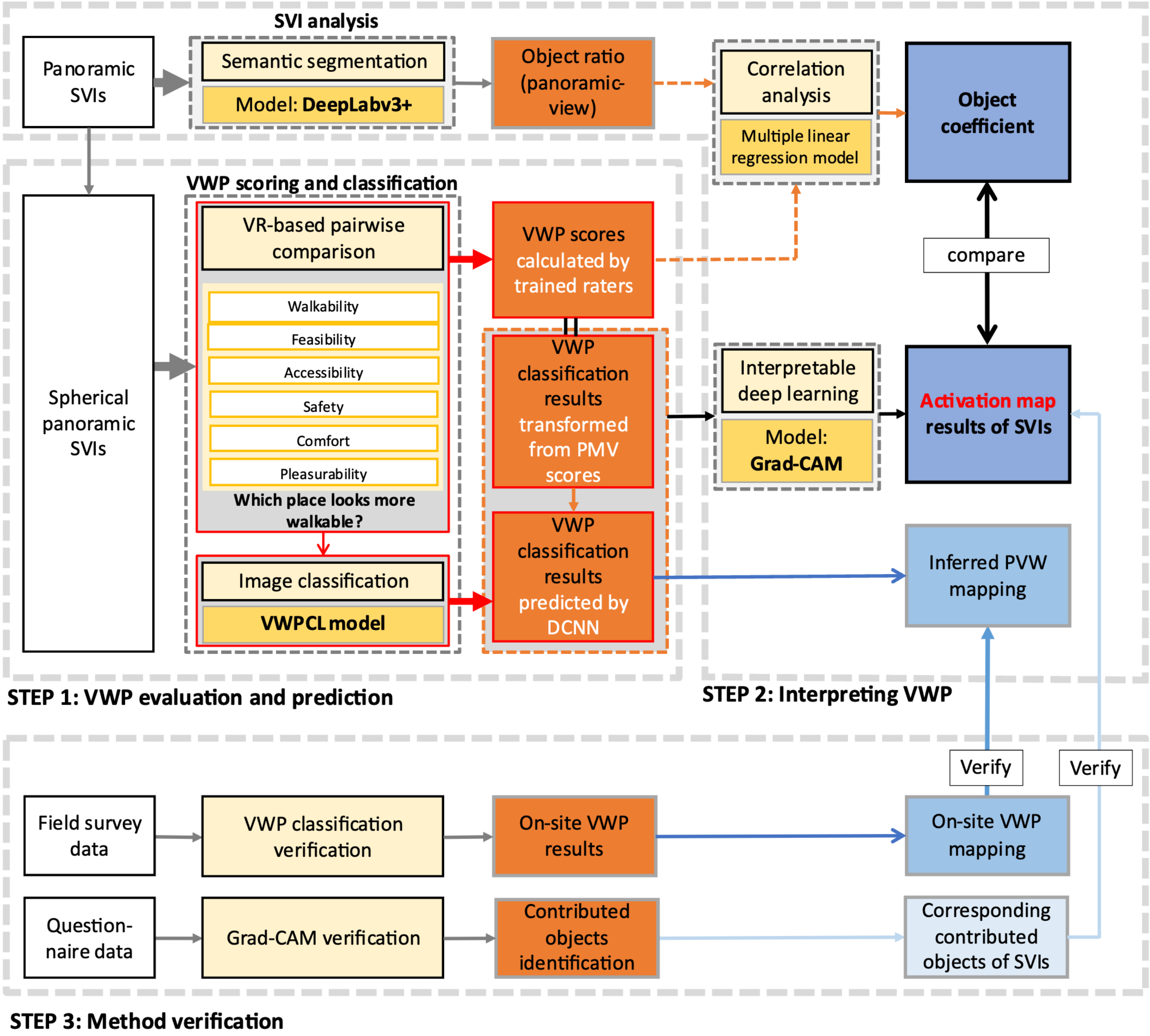


Figure 1 Framework of the study.

- **VR panoramic SVI-based and VRVWPR dataset**
- VR Visual Walkability Perceptual Rating (VRVWPR) dataset containing 2642 panoramic SVIs with VR-based human VWP ratings of urban streets.

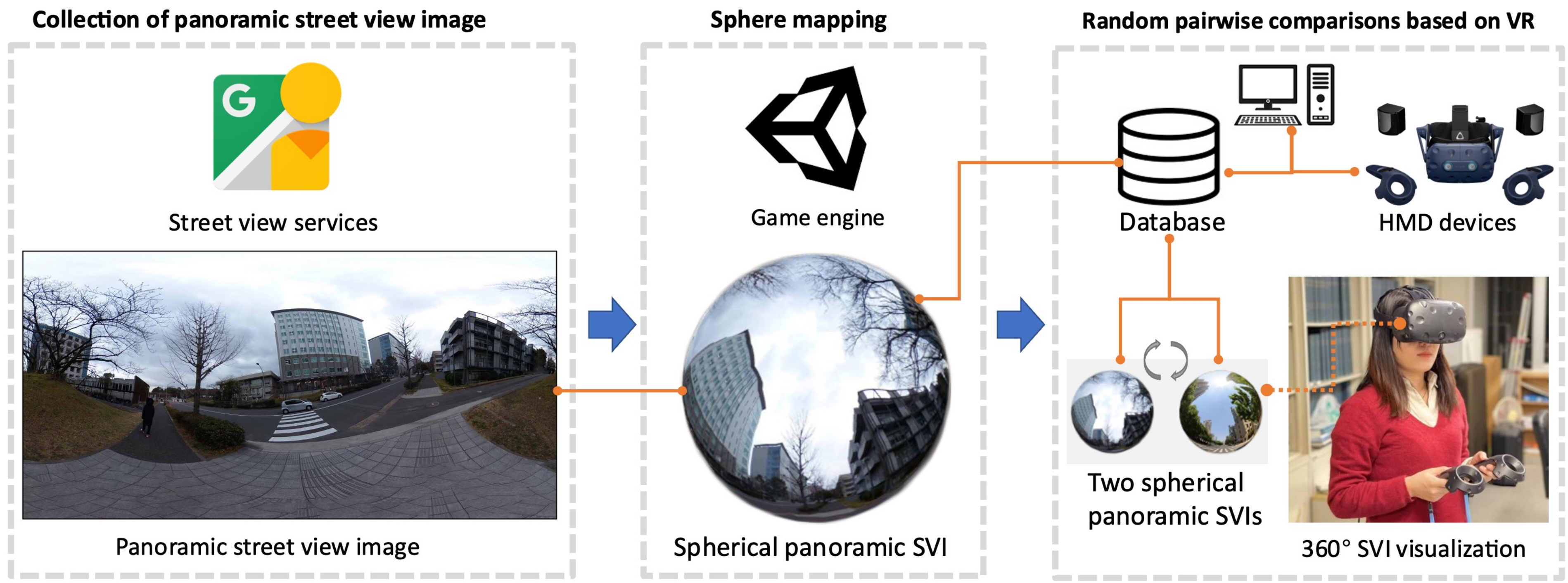


Figure 2 Workflow of the VRVWPR dataset construction.

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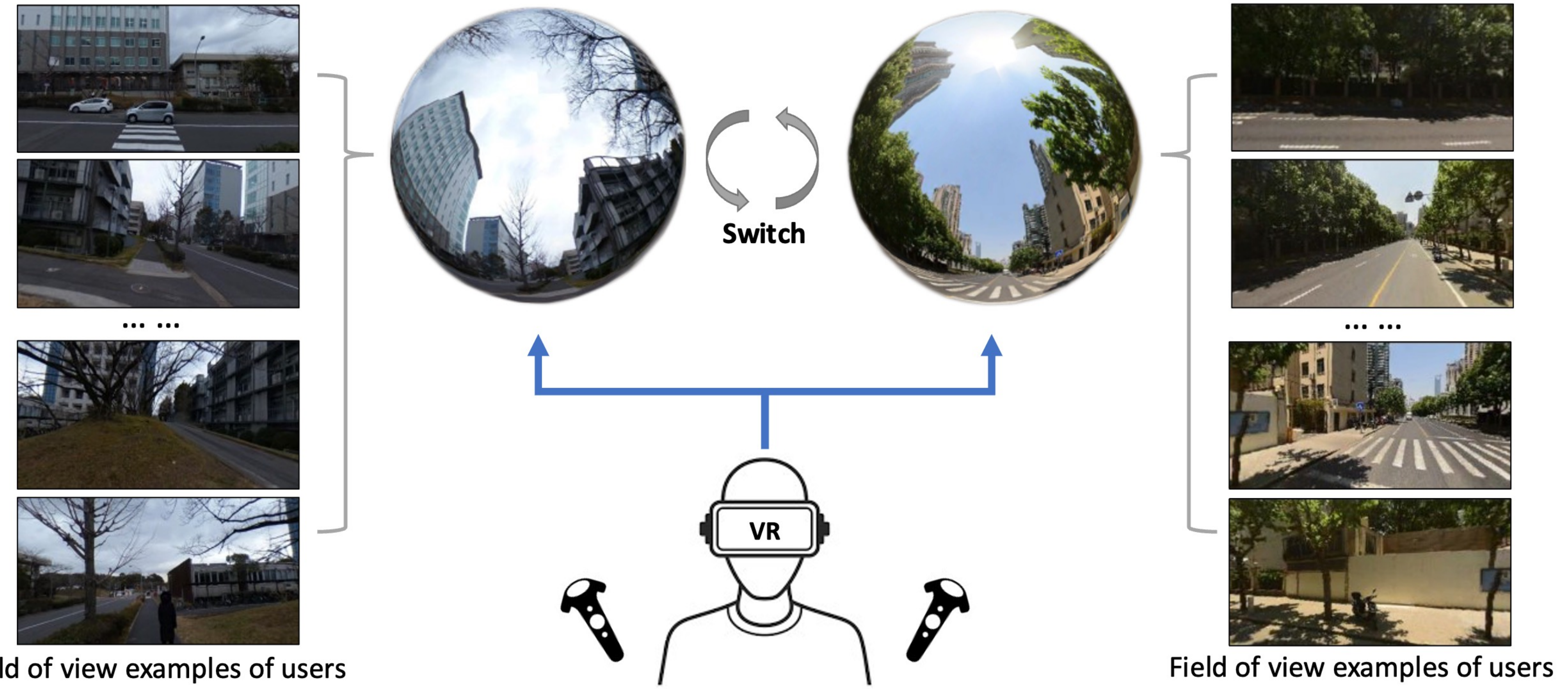
1 Materials and method (3/8)

- VR panoramic SVI-based and VRVWPR dataset



Which place looks more walkable?

Which place looks **more walkable**?
Which place looks **more feasible** for walking?
Which place looks **more accessible** for walking?
Which place looks **safer** for walking?
Which place looks **more comfortable** for walking?
Which place looks **more pleasurable** for walking?

Figure 5.3 Trained raters with HMD devices were asked to choose one of two images in response to one of six questions for the VWP categories.

1 Materials and method (4/8)

- VR panoramic SVI-based and VRVWPR dataset

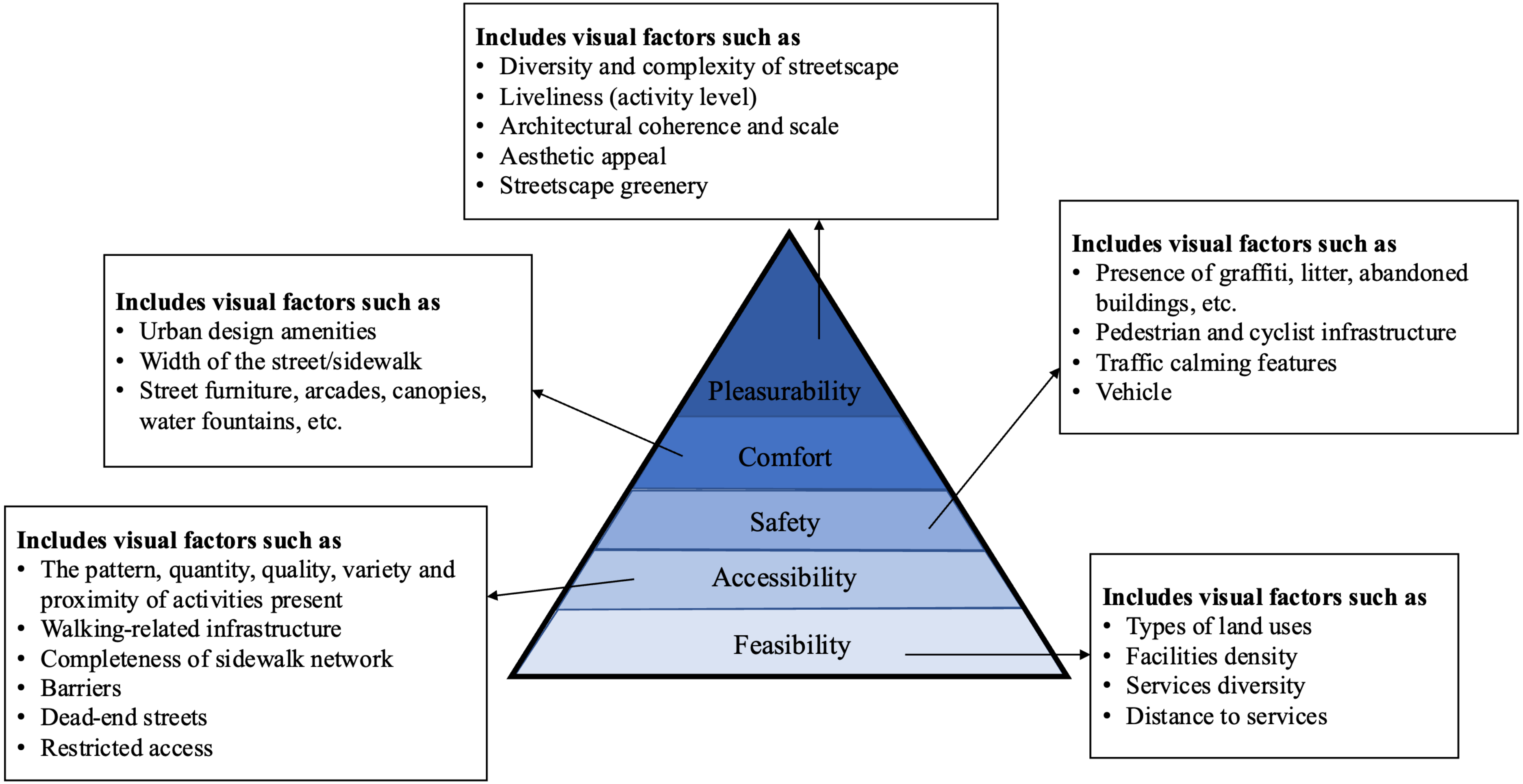


Figure 4 Visual factors in the hierarchy of walking needs.

1 Materials and method (5/8)

- VR panoramic SVI-based and VRVWPR dataset

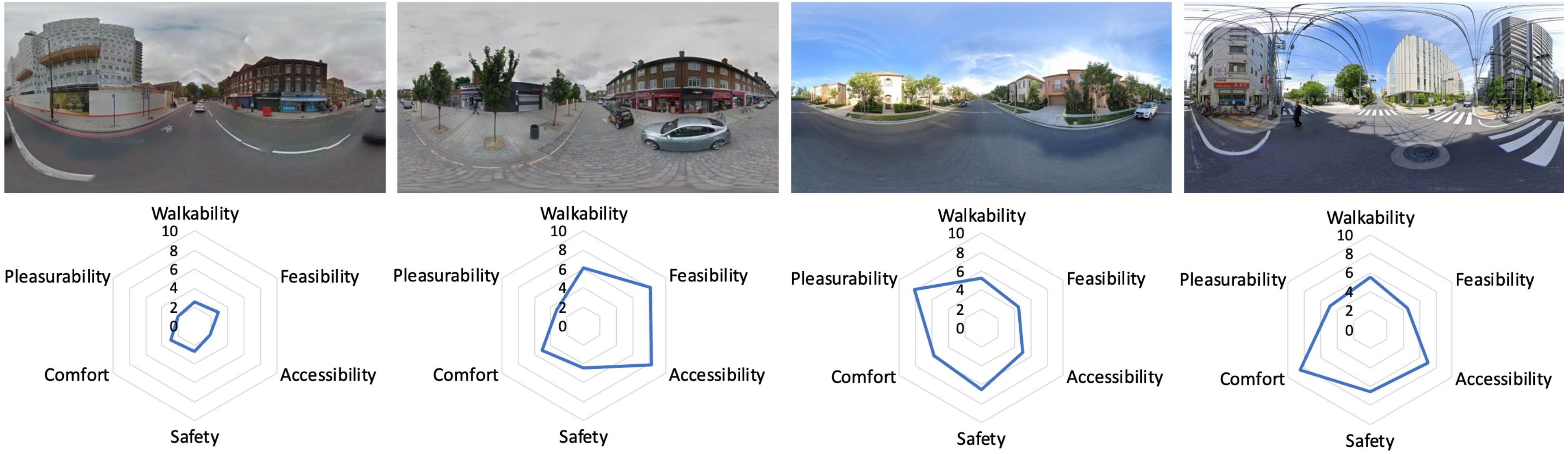


Figure 5 Image samples from the VRVWPR dataset with their perceptual score of the six categories.

	#Walkable	#Feasibility	#Accessibility	#Safety	#Comfort	#Pleasurability
H (>7)	702	660	742	408	542	672
M (3–7)	914	664	1054	980	1186	1072
L (<3)	1026	1318	846	1254	914	898

Table 2 Image classification statistics of the VRVWPR dataset in six categories (H: high score; M: medium score; L: low score)

1 Materials and method (6/8)

- **VWP evaluation and prediction**

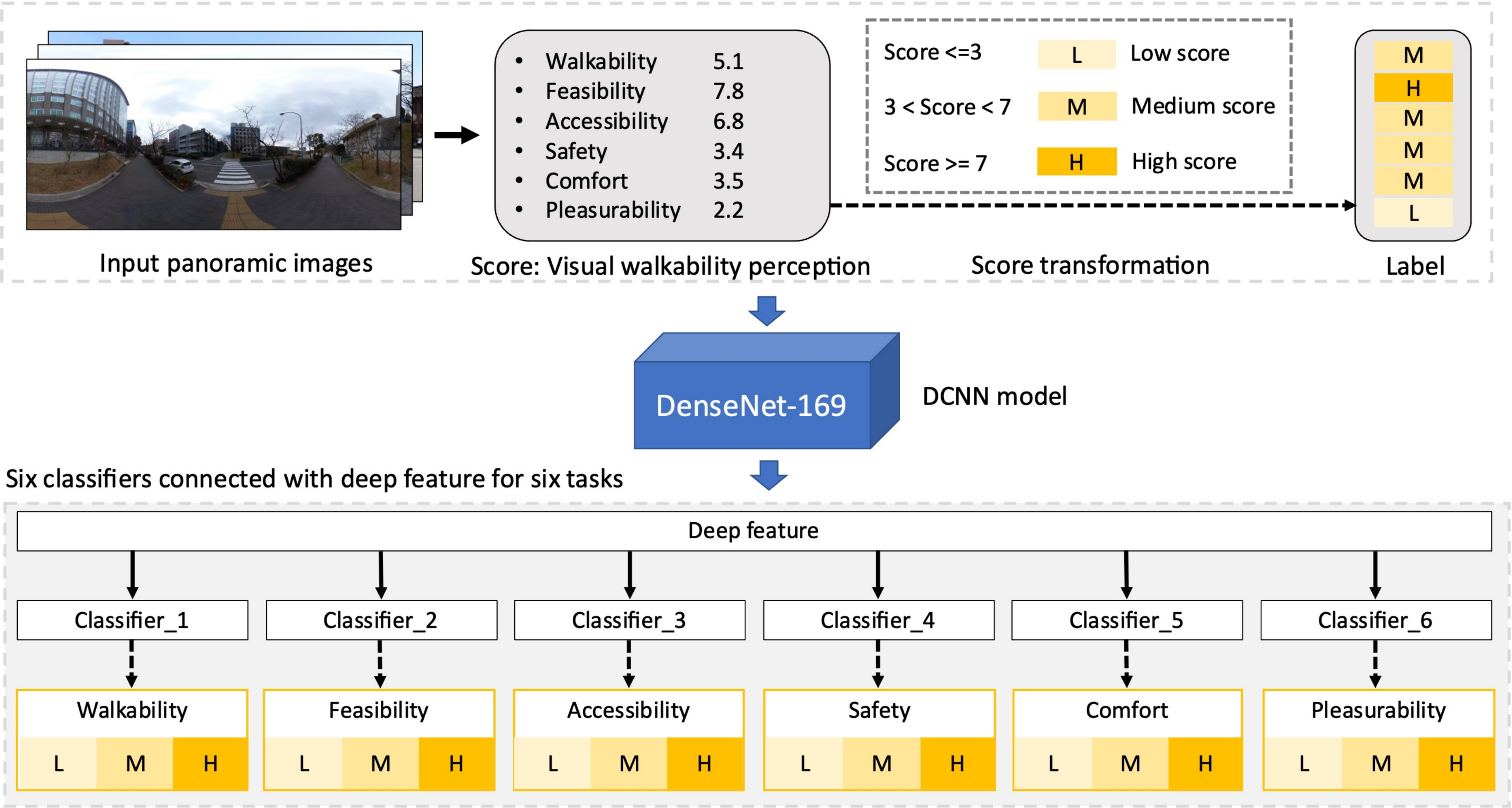


Figure 6 Workflow of the developed VWPCL model.

5.1 Materials and method (7/8)

- **Interpreting VWP**

Correlation analysis between object ratio of SVIs and VWP scores

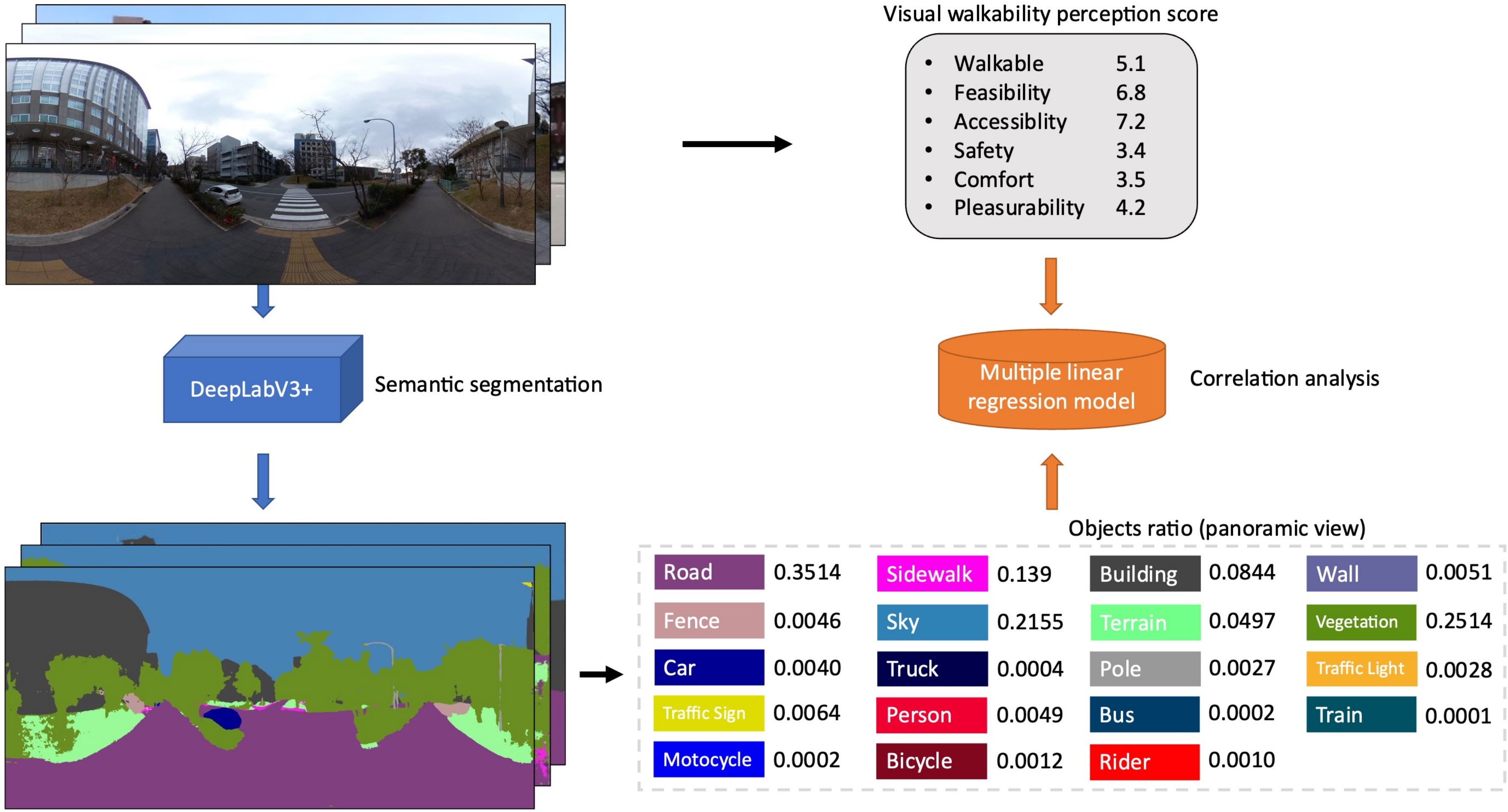


Figure 7 Workflow of the correlation analysis between the object ratio of SVIs and VWP scores.

1 Materials and method (8/8)

- **Interpreting VWP**

Interpretable deep learning for VWP results

Grad-CAM: a classical class activation mapping method that combines gradient information with feature mapping for gradient weighting.

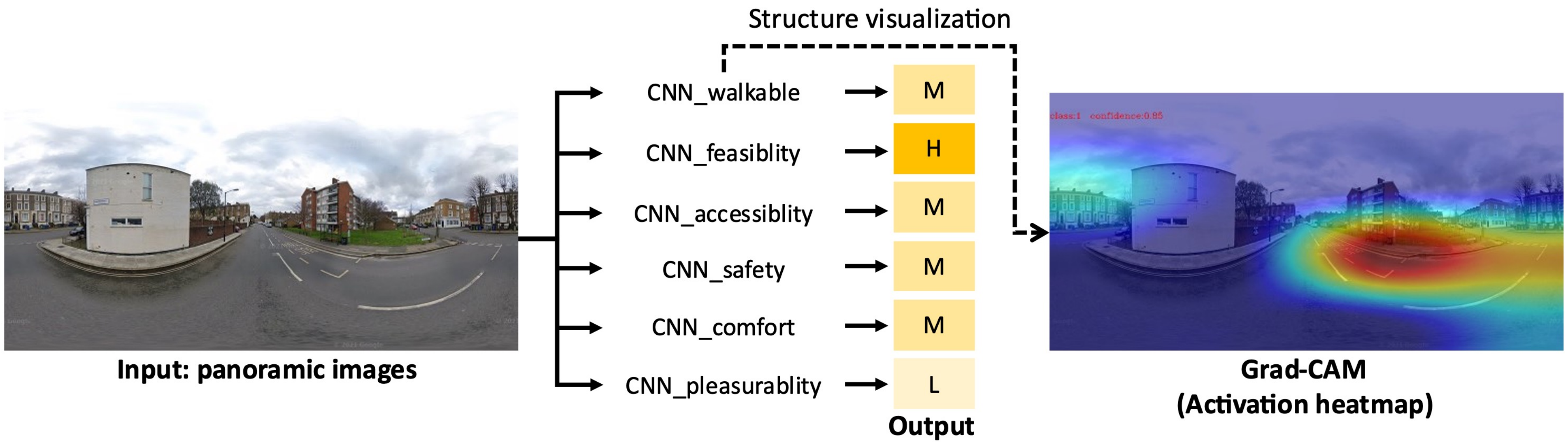


Figure 8 Workflow of interpretable deep learning for VWP results

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2 Experiment and results (1/6)

- VWP evaluation and prediction results

The model achieved an overall accuracy of 85.4% for the VWP classification in the six categories.

(a) High score (b) Medium score (c) Low score

Figure 9 Image samples from Osaka that were predicted to have (a) high scores, (b) medium scores, and (c) low scores for VWP.

2 Experiment and results (2/6)

- The classification results of the VWPCL model based on the VRVWPR dataset

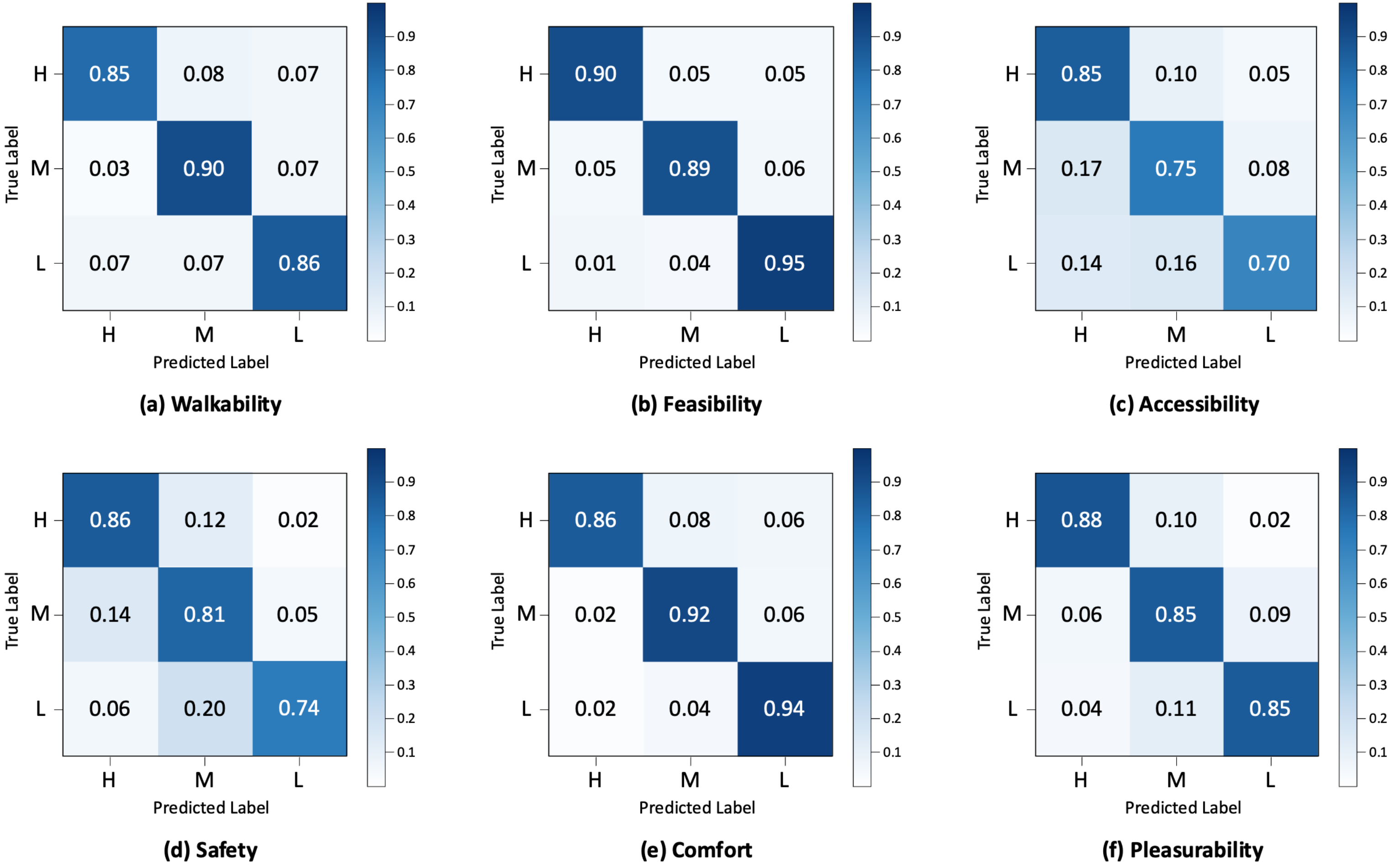

Figure 10 Normalized confusion matrices for six classification tasks: (a) walkability, (b) feasibility, (c) accessibility, (d) safety, (e) comfort, and (f) pleasurability.

2 Experiment and results (3/6)

- **Results** of VWP interpretation

Factor identification results of correlation analysis

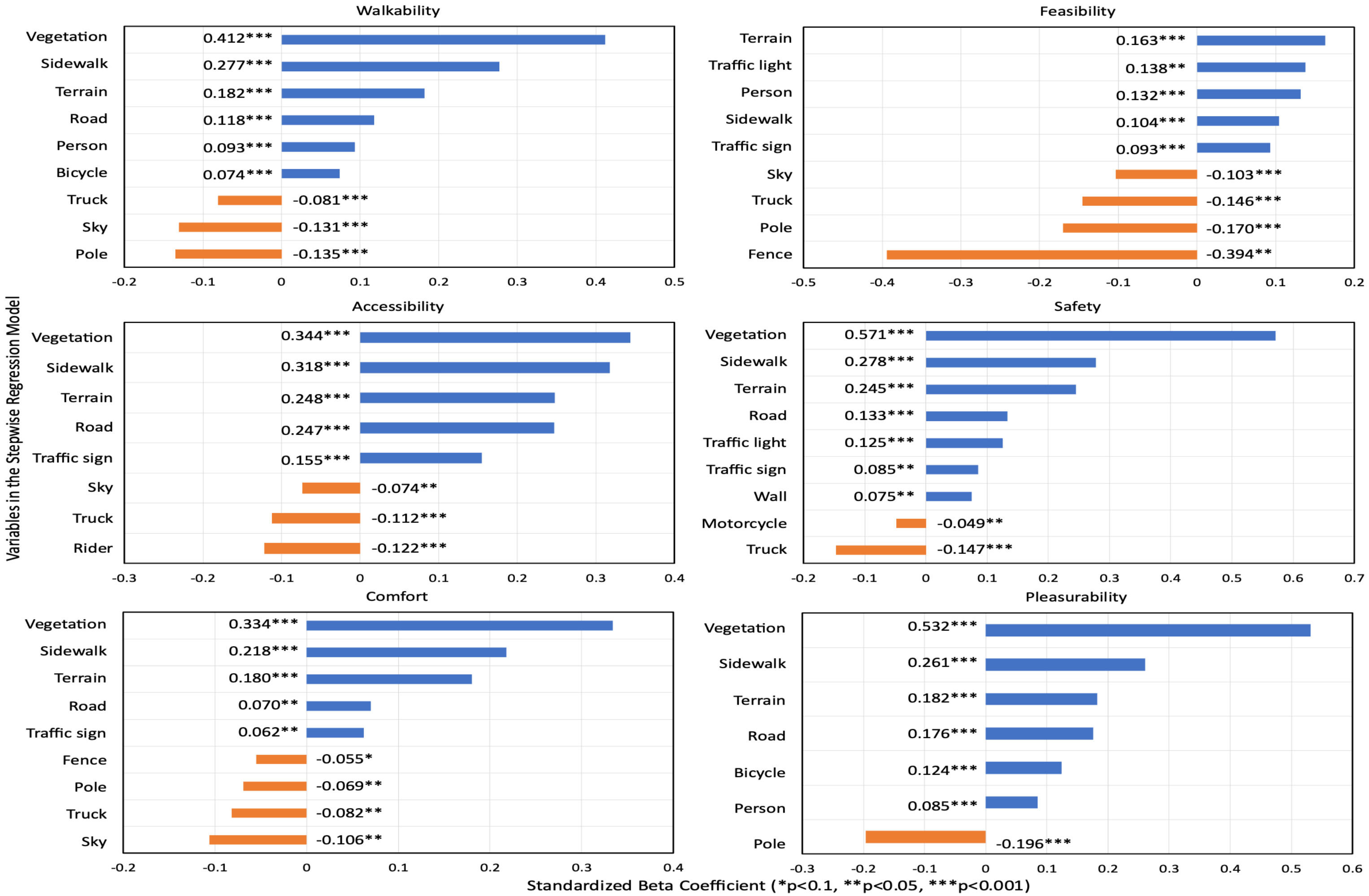

Figure 11 Results of the stepwise multiple regression analysis between the physical components and perception scores.

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- **Results** of VWP interpretation

Interpretable results for VWP using Grad-CAM

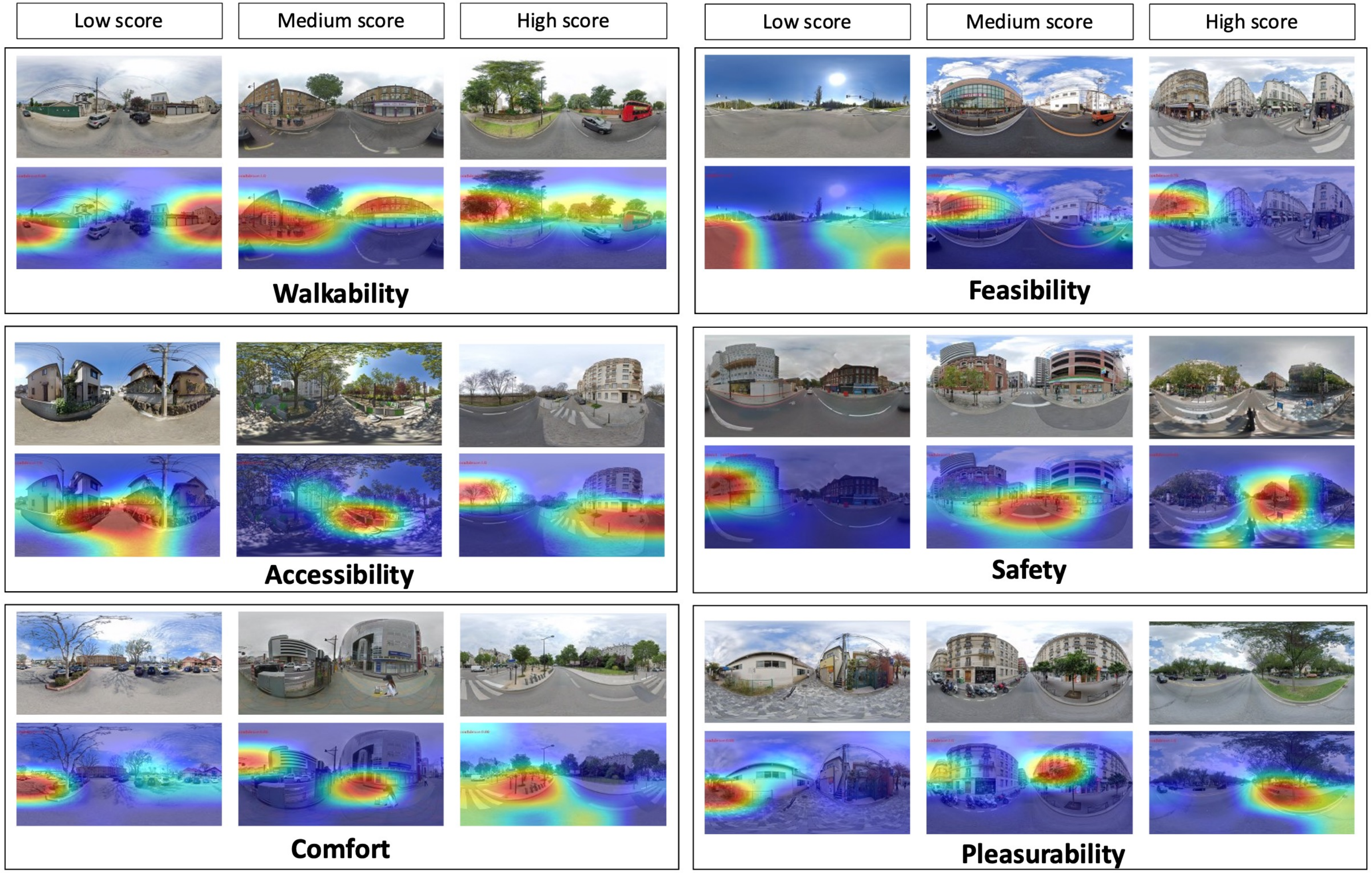

Figure 12 Examples of Grad-CAM results for six-category VWP classification.

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2 Experiment and results (5/6)

- **Method verification results**

VWP classification verification based on on-site auditing

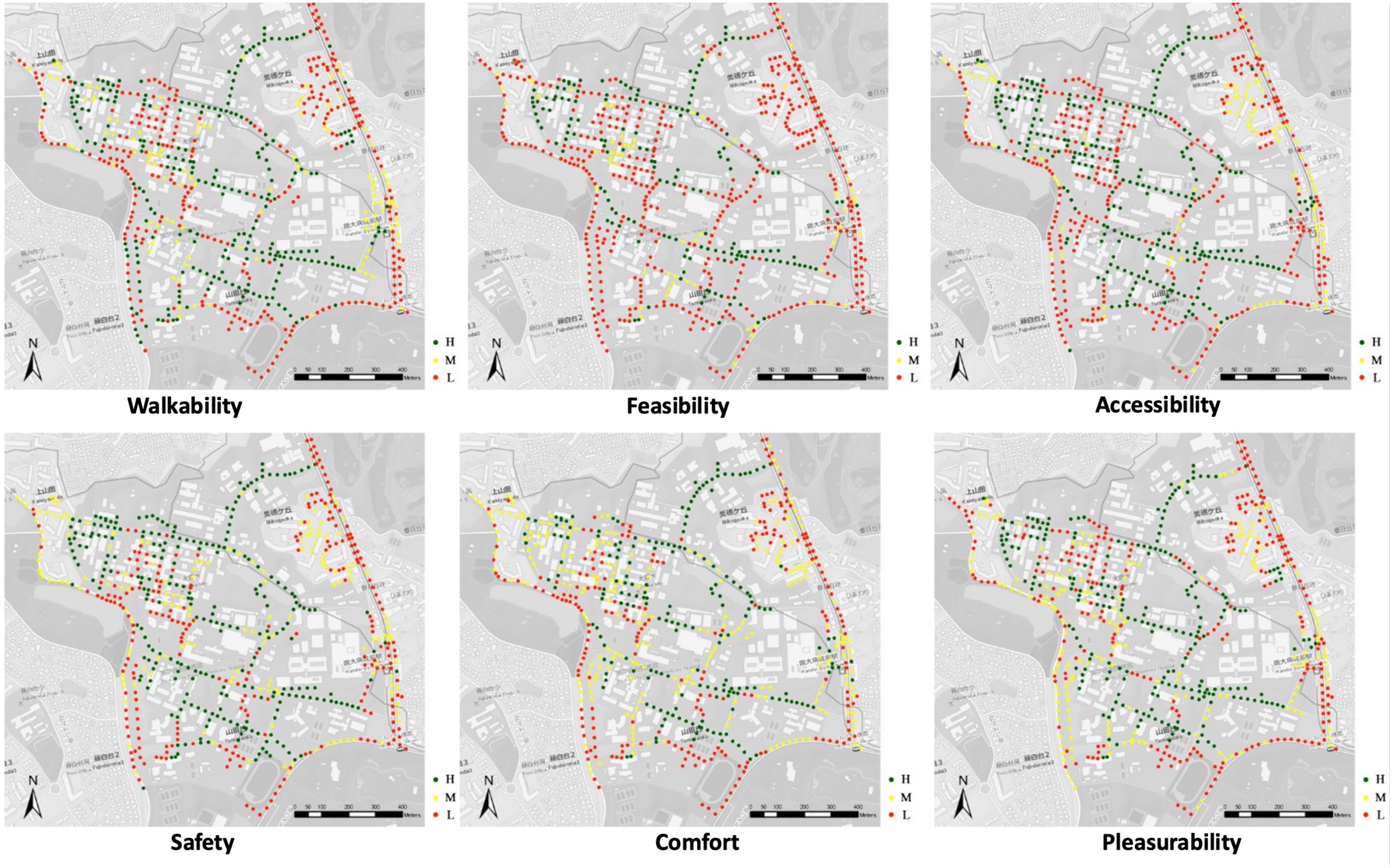

Figure 14 Mapping the predicted results of on-site verification area for VWP using VWPCL model in six categories

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- **Method verification results**

Grad-CAM verification: questionnaires for identifying contributing objects

Questionnaire: 20 volunteers for 50 sampled SVIs as a benchmark for the Grad-CAM activation map results.

For a VWP category in an SVI, the Grad-CAM validation results of this SVI were respectively recorded as fully consistent, partially consistent, and fully inconsistent if greater than 80%, between 20% and 80%, and less than 20% of volunteers perceived the contributing streetscape elements to be consistent with the activation map.

Table 6 Statistical results of 50 images for Grad-CAM verification

VWP category	Contributing objects in the questionnaires and activated areas in the activation heat map		
	No. totally consistent	No. partially consistent	No. totally consistent
Walkability	31 (62%)	Walkability	31 (62%)
Feasibility	24 (48%)	Feasibility	24 (48%)
Accessibility	27 (54%)	Accessibility	27 (54%)
Safety	28 (56%)	Safety	28 (56%)
Comfort	34 (68%)	Comfort	34 (68%)
Pleasurability	38 (76%)	Pleasurability	38 (76%)

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3 Discussion

- This is a new paradigm for observing, perceiving, auditing, and understanding the street-built environment and subjective perceptions based on the big data of panoramic SVIs.

- Compared to browser-based evaluation, immersive VR visualization helped raters make evaluations that were close to their real on-site perceptions. In addition, the VR panorama-based audit also solved the scoring bias of the natural SVIs based on different views of the same location with more consistent results.

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4 Summary

- This research employed a quantitative VR panorama-based approach to measuring human perceptions of the visual walkability of the street-built environments at scale in an automated, efficient, and accurate manner.
- The results of the study support the theory and practice of street walkability-oriented neighborhood design.
- This chapter also demonstrated the reliability of using VR panoramic SVIs and machine learning methods to understand the visual walkability value of how people perceive the physical environment of places.
- It can help researchers understand the impact of potential streetscape element features on VWP and also provides a basis for humanizing and quantifying research on the built environment of streets with a view toward walkability and the construction of smart cities.