Understanding architectural experience using an affect-laden movie database

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Aesthetics, architecture and affect are tightly woven entities – the spaces we inhabit provoke feelings and experiences, and these relationships are important to unpick. But what makes architectural experience unique is also what makes it hard to study. There is no easy experimental substitute for architecture, as space itself "determines the aesthetic value of the building".[1] Research has largely used still images or VR, but these either lack spatial-temporality or compromise atmosphere with computer-generated translations..[2,3,4] In the face of this challenge, we have developed a dataset of affect-laden videos of trajectories through real-life built environments, which can be used as experimental stimuli, and furthermore have tested them to clarify the relation of affect & architectural experience.
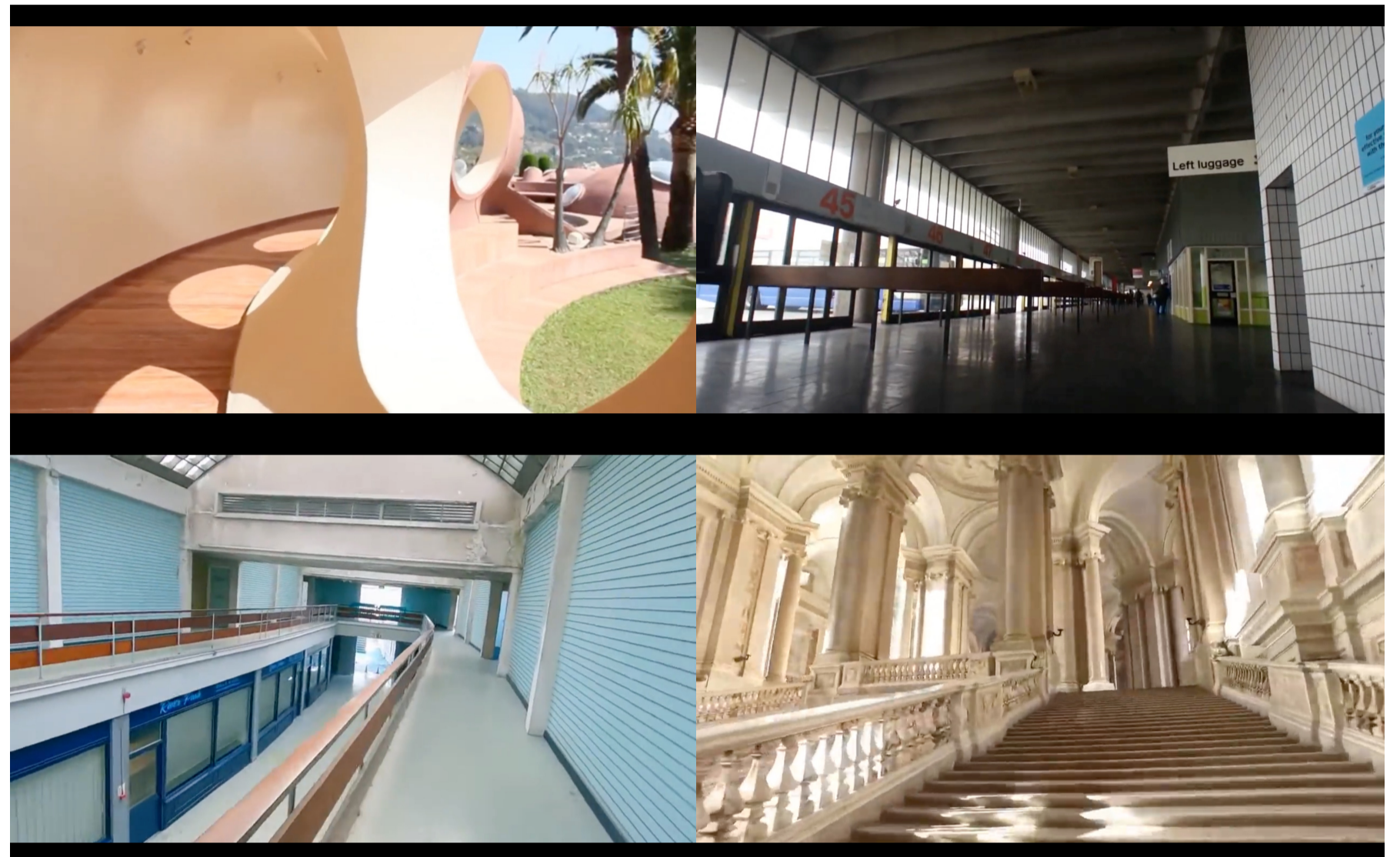
METHODS

Building the dataset:
1. Sourced ~200 videos of 1st-person journeys through built environment.
2. Edited & curated a set of 72 clips.
3. Ensured equal distribution of videos with neg/pos valence (deliberated by authors) and subsequent equal distribution of spaces with green/blue space & people present.
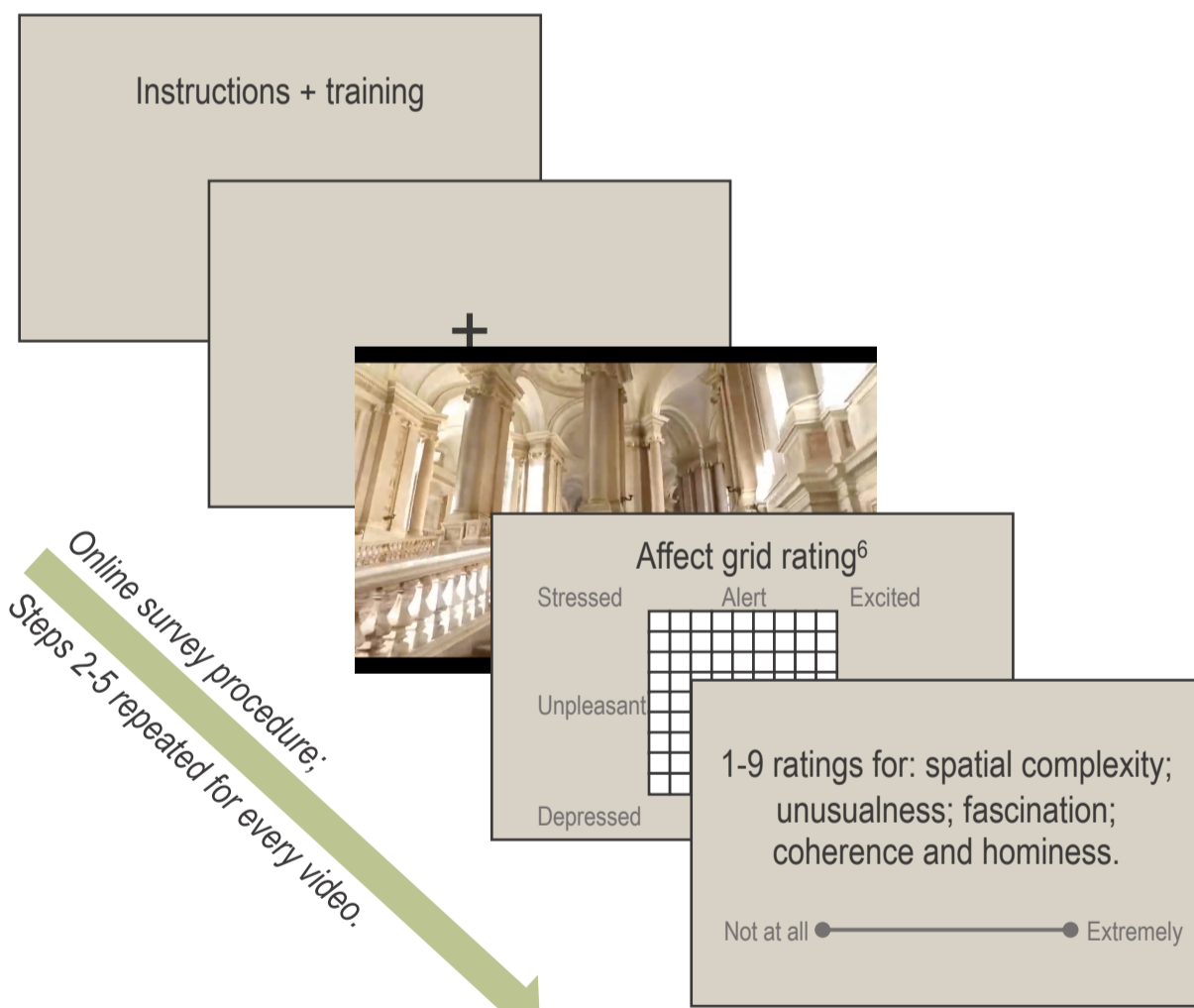
Testing the dataset:
1. Online survey rating 72 clips on 7 categories: valence, arousal, spatial complexity, unusualness, fascination, coherence, hominess.[5]
2. N=73 participants (non-architects) via Prolific and SONA; rating 36 clips each.
3. Duplicate survey (N=16) rating beauty instead of valence.

Coherence, hominess and fascination are central psychological dimensions of architectural experience.[5] We explore these in relation to the two dimensions of core affect.

Images illustrate snapshots from dataset covering 30 building types. See an example clip here: https://youtu.be/dePnhkAvrAo

PROCEDURE

Instructions + training

Affect grid rating[6]

Stressed — Alert — Excited

Unpleasant

Depressed

1-9 ratings for: spatial complexity; unusualness; fascination; coherence and hominess.

Not at all ———— Extremely

Online survey procedure; Steps 2-5 repeated for every video.

RESULTS

- **Fascination (0.840), coherence (0.887) & hominess (0.806) correlate with valence**, supporting previous findings[5], but *only* fascination correlates with arousal (0.511), **adding to our understanding of how core affect interacts with these 3 psychological dimensions**.
- Arousal also correlates with spatial complexity (0.405) and unusualness (0.564).
- Unusualness and valence correlate *only* within negatively valenced videos (0.642).
- Unusualness and complexity weakly correlate (0.335); they are independent but related factors in fascinating & arousing spaces.
- Across all categories, mean scores *are not* significantly different (p>0.05) among videos with or without green/blue space; or people i.e. these two factors do not drive responses.
- Participants self-reporting strong survey-based navigational skills[7] find complex spaces more fascinating than those that do not.
- Beauty and valence scores are highly positively correlated (0.937), demonstrating their close relationship in aesthetic experience.
- **63/72 videos passed a 2-tiered process** to be evaluated as **distinctly positively or negatively valenced** across participants.
- **50/63 videos are deemed both pos/neg valenced *and* simple/complex in layout**, and will be used in an upcoming fMRI study exploring aesthetic vs spatial coding.

Subset of 63 pos/neg spaces
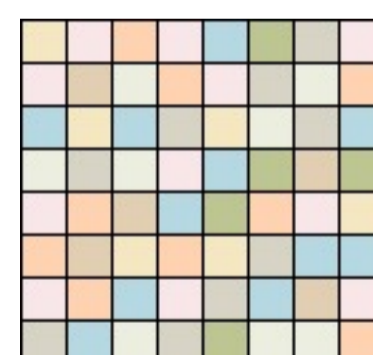
Subset of 50 pos/neg & simple/complex spaces
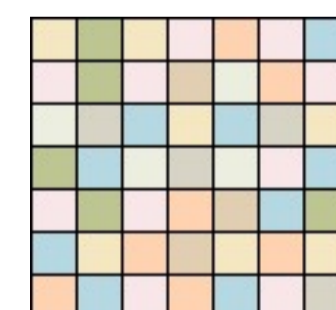
To feed into future studies on neural underpinnings of arch. experience

CONCLUSIONS

Our new dataset furthers understanding of architectural experience, translating previous findings to a new medium, and unpicking their relationship to core affect. We also deduce a subset of 63 videos that are distinctly valenced, and a subset of 50 that are distinct in valence and complexity, providing a streamlined movie database for future study - to our knowledge, the first of its kind. This gives scope to study dynamic changes in architectural qualities e.g. scale; openness; etc.

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