Measuring Avatar Types in Use on a Commercial Metaverse Platform from Usage Logs

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Abstract

Avatars mediate self-presentation and social interaction in social VR, but which avatars are actually used on operational platforms is poorly documented. We classified 2,010 avatars sampled from the usage logs of the metaverse platform Cluster along four dimensions: form, visual style, perceived gender, and perceived age, with a single annotator verifying preliminary vision–language-model (VLM) labels. Human and demihuman forms accounted for 84.3% of the sample, and 83.7% of avatars used an anime-like style; feminine (63.1%) and adult-presenting (54.6%) avatars were the largest groups. The combined human/demihuman share is close to the 89% reported by a 2021 self-report survey, but that survey found near parity between the two categories, whereas our sample has almost twice as many humans as demihumans. The distribution provides a baseline for avatar recommendation, in-world agent appearance design, and audits of representational diversity.

CCS Concepts

• **Human-centered computing** → **Empirical studies in HCI**; *Virtual reality*.

Keywords

Social VR, metaverse, avatar, content analysis, self-presentation

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1 Introduction

Avatar appearance shapes behavior and self-perception and mediates identity construction and disclosure in social VR [2], including the Japanese practice of adopting feminine avatars known as *babiniku* [1]. Which appearances users adopt matters for avatar recommendation, in-world agent design, and audits of representational diversity, yet the distribution of appearances in use on operational platforms remains underexplored.



(a) (b) (c) (d)

Figure 1: Examples of avatar-form categories on Cluster: (a) human, (b) demihuman (a human body with non-human features, here wings), (c) animal, and (d) humanoid robot.

The 2021 Social VR Lifestyle Survey reported that 44% of respondents used human and 45% demihuman avatars, and that many physically male users chose feminine avatars [4, 5]. Self-reports are exposed to recall and selection bias, so whether avatars seen on a platform match these figures is open. The one large-scale direct measurement to date, an analysis of 14,440 avatars depicted in academic publications [3], describes what researchers build rather than what users wear on a live platform. We therefore classify 2,010 avatars drawn from the usage logs of Cluster, a Japanese metaverse platform, along four appearance dimensions and compare the result with the 2021 survey.

2 Method

Sampling. We drew 2,050 records at random from all avatar-use records logged on Cluster during April 2026. Because sampling was over use records, not unique avatars, a widely used avatar could be drawn more than once; the sample reflects usage frequency, not the catalog. For each record we retrieved the user-uploaded 2D thumbnail; 40 files could not be loaded, leaving 2,010 usable records. Although duplicate avatar instances were allowed during sampling, repeated avatars were removed before statistical analysis; the reported distributions therefore represent unique avatars rather than usage frequency.

Annotation. A vision–language model (VLM; GPT-5.6 Luna) first labeled each thumbnail. The first author then reviewed every label in a custom web interface and corrected it where necessary; no label was accepted unreviewed. Only evidence visible in the thumbnail was coded.

Coding scheme. The four dimensions extend the survey's human/demihuman distinction [4] with style, perceived gender [1, 5], and perceived age. **Form**: human, demihuman (a human body with non-human features such as animal ears, wings, or a tail), humanoid

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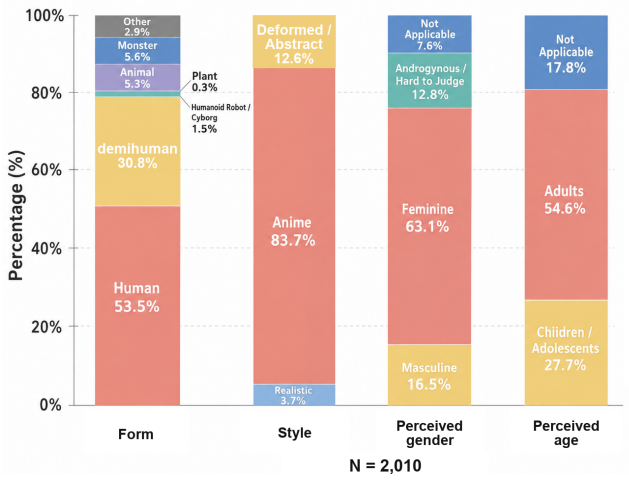

Figure 2: Human/demihuman (84.3%), anime-like (83.7%), feminine (63.1%), and adult (54.6%) representations dominate. Distribution of 2,010 avatars on Cluster across form, style, perceived gender, and perceived age.

robot/cyborg, animal, plant, monster, other, and indeterminate (Fig. 1). **Style**: realistic, anime-like (illustrative rendering with near-human proportions), and deformed/abstract (strongly exaggerated proportions such as chibi figures, or non-figurative shapes) [7]. **Perceived gender**: masculine, feminine, androgynous/indeterminate, and not applicable. **Perceived age**: child/adolescent, adult, and not applicable. "Not applicable" marks forms to which a human gender or age concept cannot reasonably be assigned.

3 Results and Discussion

Humans were the largest form category (53.5%), followed by demihumans (30.8%), together 84.3% (Fig. 2). Monsters (5.6%), animals (5.3%), humanoid robots/cyborgs (1.5%), plants (0.3%), and other forms (2.9%) made up the rest. Anime-like style dominated (83.7%) over deformed/abstract (12.6%) and realistic (3.7%). Feminine avatars (63.1%) outnumbered masculine (16.5%), androgynous/indeterminate (12.8%), and not applicable (7.6%). Adults (54.6%) outnumbered children/adolescents (27.7%) and not applicable (17.8%). With $N = 2{,}010$, every reported proportion has a 95% confidence interval within ±2.2 percentage points.

Non-human forms make up 15.6% of the sample, while gender was marked not applicable for 7.6% of avatars and age for 17.8%. These marginal totals do not establish how gender- and age-applicability varied within each form category, because the corresponding cross-tabulations were not available.

Comparison with self-reports. The combined human/demihuman share (84.3%) is close to the 89% of the 2021 survey [4]; the split is not. Humans outnumber demihumans almost two to one here, whereas the survey reported near parity (44% and 45%). The survey pooled respondents across platforms, most of them VRChat users, and used its own category definitions; either factor, or the observation period, may explain part of the gap.

Style, gender, and age. The feminine majority agrees with surveys in which many physically male users report choosing feminine avatars [4, 5]. With realistic avatars at 3.7%, this suggests that avatar choice on Cluster often expresses a stylized ideal rather than the user's physical appearance. Supply contributes as well: Cluster accepts avatars in the VRM format, and tools such as VRoid Studio commonly produce anime-style figures. More than a quarter of avatars presented as children or adolescents; with the feminine and anime-like majorities, this matches the *kawaii* aesthetic described for *babiniku* [1], though motivation was not measured.

Implications and limitations. The distribution can inform default and recommended avatars and the appearance of in-world agents [6], e.g., an agent in the dominant anime-like humanoid style, an untested hypothesis. Repeated at intervals, the measurement becomes a time series of platform culture. Three limitations apply. A single annotator coded all avatars, so no inter-rater agreement is available and the VLM prelabels may have anchored judgments. The sample covers one month on one platform with a predominantly Japanese user base. Coding relied on user-uploaded 2D thumbnails, which need not reflect an avatar's full 3D appearance or motion.

4 Conclusion

Direct observation of 2,010 avatars on Cluster showed a distribution dominated by human or demihuman, anime-like, feminine, and adult-presenting representations; the combined human/demihuman share matches a self-report survey, the split within it does not. Future work will add annotators for inter-rater agreement, relate avatars to usage context, and compare platforms.

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