Geollery
A Mixed Reality Social Media Platform

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INTRODUCTION

We present Geollery, an interactive mixed reality social media platform for creating, sharing, and exploring geotagged information. Geollery introduces a real-time pipeline to render an interactive mirrored world of social media.

Geollery reconstructs 3D environments by progressively fusing data from *Google Maps*, *OpenStreetMap*, and *Google Street View*. Our system integrates both internal user-generated content and external geotagged social media such as *Twitter* and *Yelp*. This mirrored world allows users to see, chat, and collaborate with remote participants with the same spatial context in an immersive virtual environment.

SYSTEM DESIGN

2D polygons and metadata from OpenStreetMap

internal and external geotagged social media

shaded 3D buildings with 2D ground tiles

virtual forms of social media: balloons, billboards, and gifts

added avatars, clouds, trees, and day/night effects

Geollery fuses the mirrored world with geotagged data, street view 360° images, and virtual avatars.
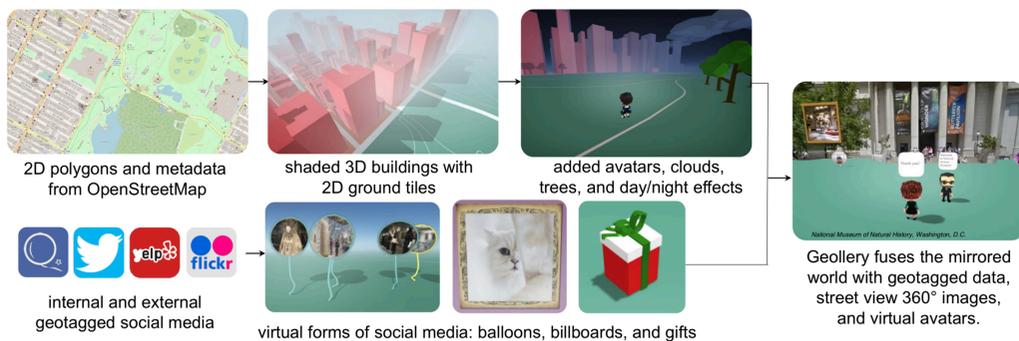
Geollery extends the design space of 3D social media platform with real-time 3D reconstruction, 6 DoF navigation, and broader data sources. Within this mirrored world, users can visualize and post their own social media in the form of billboards, balloons, framed photos, and 3D models. Users can also choose from over 60 different avatar styles to represent themselves.

(a) stacks
(b) poster boards
(c) temporal transition
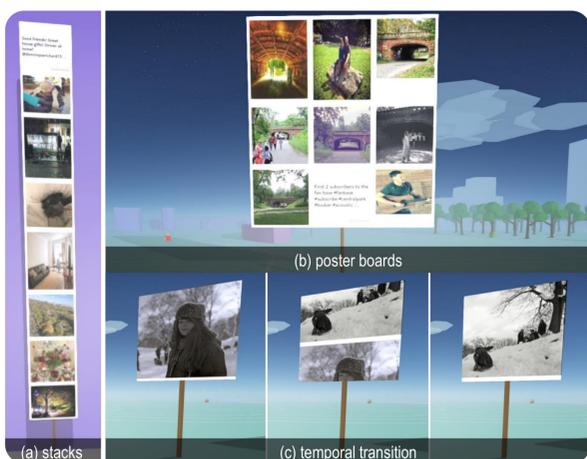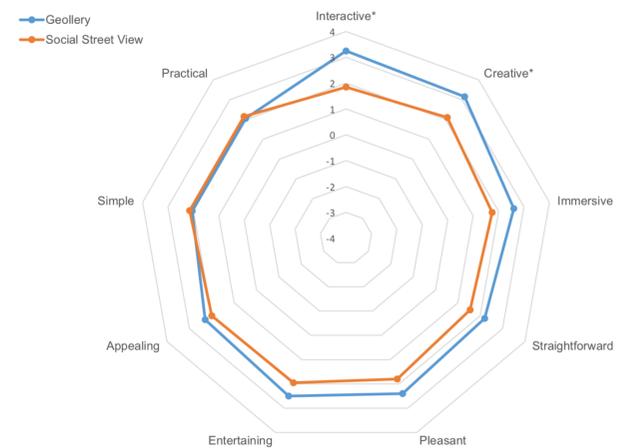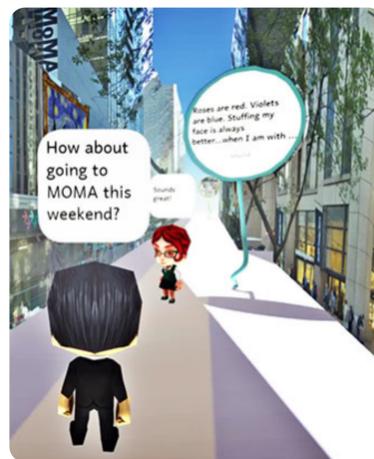
USER STUDY

To evaluate the potential benefits and drawbacks of creating a fully immersive 3D social media platform, we conduct a user study comparing Geollery to a prior work, *Social Street View*, which only allows users to teleport between street views. We conducted the user study with 20 participants, (10 female) ages 21-30, found Geollery to be significantly more interactive than Social Street View, due to the ability for users to freely move around. Our participants proposed several use cases for an immersive 3D social media platform including family gatherings and virtual parties.

FUTURE WORK

In future, we envision a system that fuses a variety of multimedia data to create a vivid mirrored world. As techniques for 3D reconstruction improve, new pipelines such as *Montage4D* and *Motion2Fusion* may allow us to integrate multiview videos as 3D visualizations within Geollery. Please refer to duruofei.com for more detail.

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