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## **How Can We Encourage Collaboration in Mapmaking?**

Olga Khroustaleva and Patrick Larvie  
User Experience Research

# Overview

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What makes mapmaking a social activity?

How can we encourage collaboration in mapmaking?

User experience research and methodological challenges



# Maps as instruments of debate

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*Treaty of Tordesillas, 1494*



*Stonehenge, 2007*

# Collaboration in GIS

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Prior work focuses on professional users

- Argumentation Maps for city planning (Rinner)

Our work focuses on non-expert users who may have a common interest



# Elements of social interaction

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Ability to identify contributors

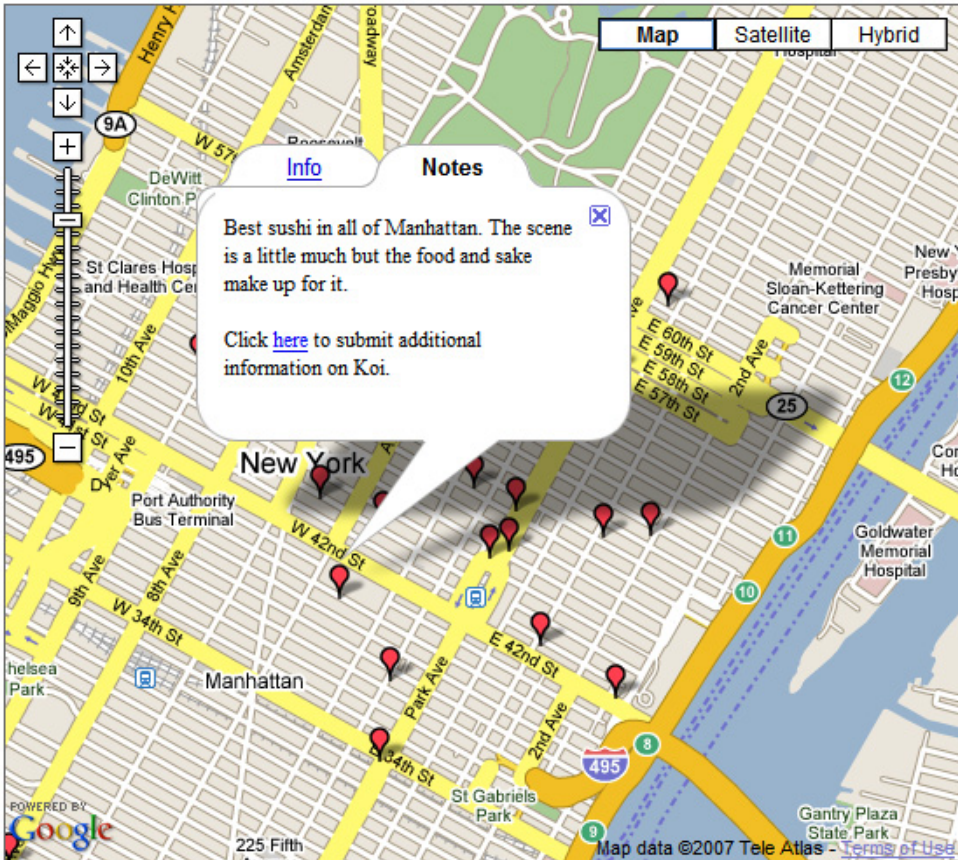
- Social identity of authors helps users to evaluate contributions

Sense of community and a shared purpose



# Who is the author?

**NYC Restaurants (Beta)** [Map](#) [About](#) [Contact](#) [Known Issues](#)



**Info** **Notes**

Best sushi in all of Manhattan. The scene is a little much but the food and sake make up for it.

Click [here](#) to submit additional information on Koi.

<a href="#">Blue Ribbon Sushi</a>	Sushi	SoHo
<a href="#">Blue Water Grill</a>	Seafood	Union Square
<a href="#">Bobby Van's Steakhouse</a>	Steakhouse	Midtown - East 40s
<a href="#">Brasserie LCB</a>	French, Brasserie	Midtown - West 50s
<a href="#">Bubby's</a>	American Traditional	DUMBO
<a href="#">Casa Mono</a>	Catalan	Gramercy Park
<a href="#">Chow Bar</a>	Asian	Greenwich Village
<a href="#">Craft</a>	American	Flatiron
<a href="#">Davidburke and Donatella</a>	American Nouveau	Upper East Side
<a href="#">db Bistro Moderne</a>	French, Bistro	Midtown - West 40s
<a href="#">Del Frisco's</a>	Steakhouse	Midtown - West 40s
<a href="#">Dinosaur BBQ</a>	BBQ	Harlem
<a href="#">Esperanto</a>	Latin American	East Village
<a href="#">Estiatorio Milos</a>	Greek	Midtown - West 50s
<a href="#">Fiamma Osteria</a>	Italian	Soho
<a href="#">Foodswings</a>	Vegan	Williamsburg
<a href="#">Koi</a>	Sushi	Midtown - West

Powered by [Google Maps](#) and the [API](#) | Engineered by [Dissident Design](#)  
Click [here](#) to submit restaurants you would like included on the list.

Map data ©2007 Tele Atlas - [Terms of Use](#)

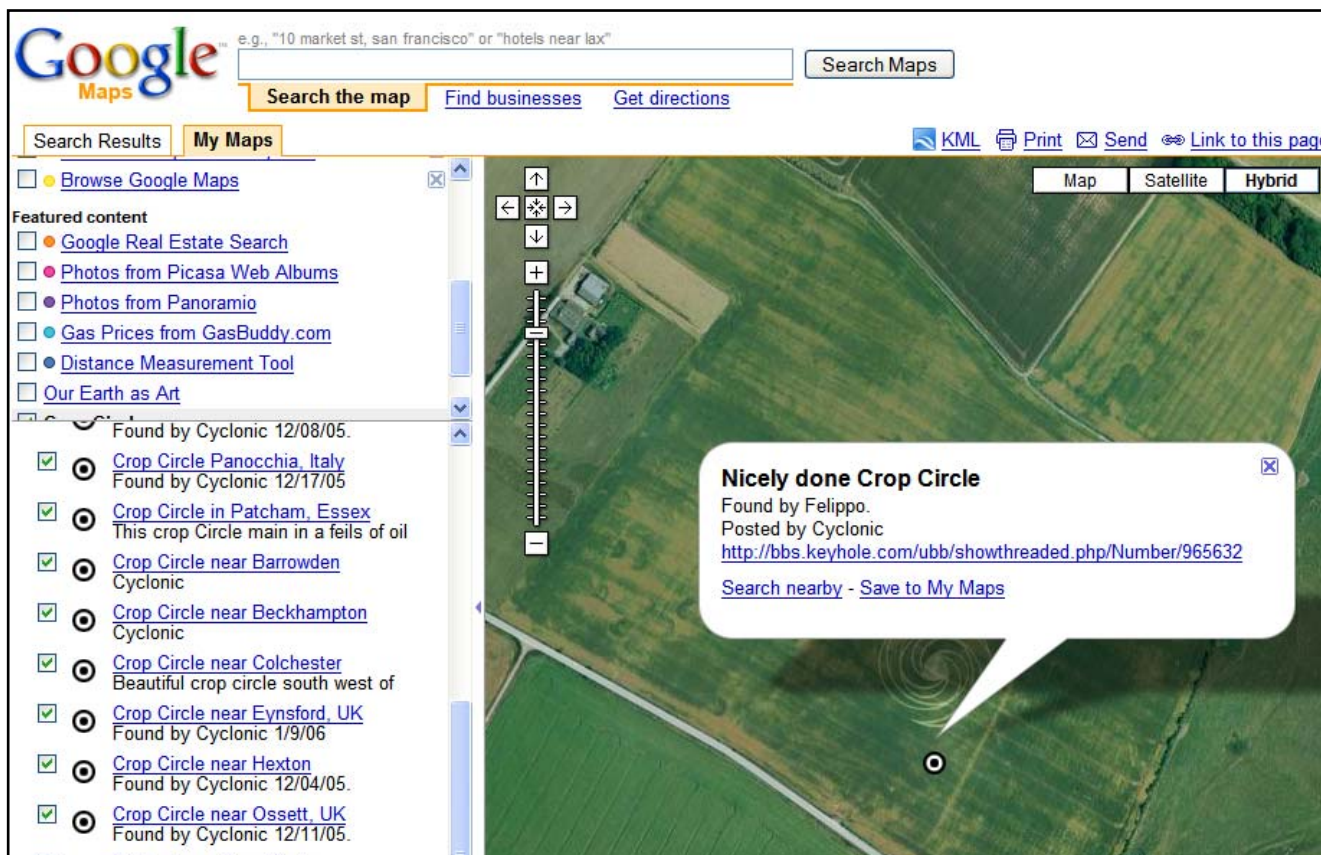
GET FIREFOX

*Best sushi in New York*



# Mapmaking communities

Sense of community is most apparent within special interest groups



The screenshot shows the Google Maps interface. At the top, there is a search bar with the text "e.g., '10 market st, san francisco' or 'hotels near lax'" and a "Search Maps" button. Below the search bar are links for "Search the map", "Find businesses", and "Get directions". On the right side, there are icons for "KML", "Print", "Send", and "Link to this page". The main map area shows a satellite view of a rural landscape with a crop circle highlighted. A pop-up window titled "Nicely done Crop Circle" is open over the crop circle, containing the following text:

**Nicely done Crop Circle**  
Found by Filippo.  
Posted by Cyclonic  
<http://bbs.keyhole.com/ubb/showthreaded.php/Number/965632>  
[Search nearby](#) - [Save to My Maps](#)

On the left side of the map, there is a sidebar with a "My Maps" tab. Below it, there is a list of featured content and a list of crop circles. The list of crop circles includes:

- Found by Cyclonic 12/08/05.
- [Crop Circle Panocchia, Italy](#)  
Found by Cyclonic 12/17/05
- [Crop Circle in Patcham, Essex](#)  
This crop Circle main in a feils of oil
- [Crop Circle near Barrowden](#)  
Cyclonic
- [Crop Circle near Beckhampton](#)  
Cyclonic
- [Crop Circle near Colchester](#)  
Beautiful crop circle south west of
- [Crop Circle near Eynsford, UK](#)  
Found by Cyclonic 1/9/06
- [Crop Circle near Hexton](#)  
Found by Cyclonic 12/04/05.
- [Crop Circle near Ossett, UK](#)  
Found by Cyclonic 12/11/05.

*Crop circles on Google Maps*



# Why isn't mapmaking more collaborative?

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Mapmakers mostly work alone, and then share results of their work



# Challenges of collaborative mapmaking

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Mapmaking activities are distributed in time and space

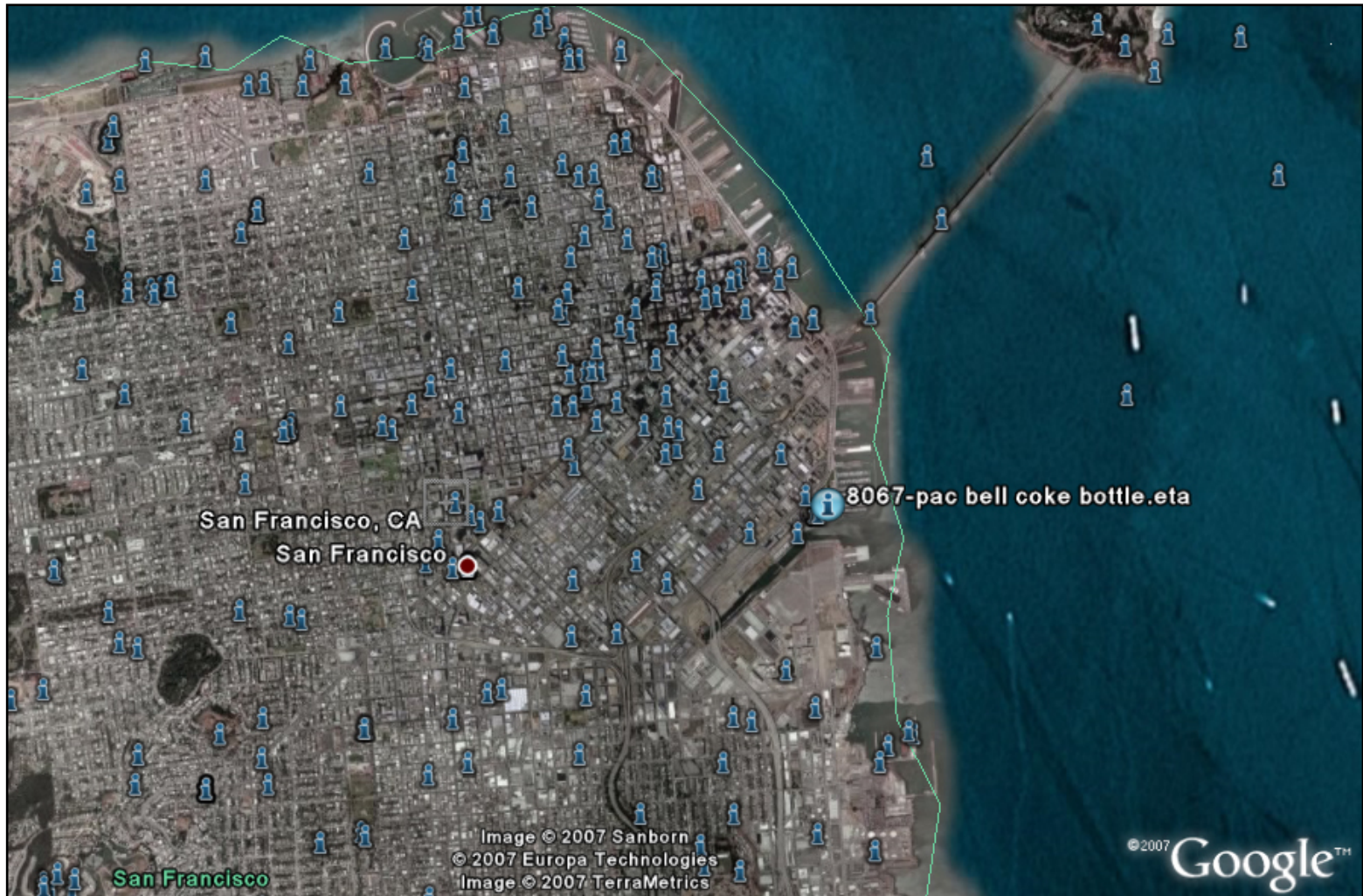
Current tools do not support collaboration well

- No built-in communication tools for direct interaction
- Impossible for several people to edit a map at the same time
- Difficult to share maps after they've been created

As a result, it is difficult to negotiate value of content posted to the map



# Content overload



*San Francisco, as seen on Google Earth Community layer*



# User experience research

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Which tools and interactions are the right ones to foster collaboration?

Our research shows that mapmaking applications, for instance Google Earth, are difficult to use

Usability is especially important since the users are non-experts, and the authoring environment is intrinsically complex



# Research challenges

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Authors of maps are geographically distributed

Contributions are dispersed in time

Often, there is no direct or indirect communication between mapmakers



# Rapid ethnography

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Field visits to capture rich qualitative information about our users

Additional data collection over email or phone

Ethnography allows us to observe mapmakers in context



# Limitations of ethnographic approach

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We can't see the total experience – we can only observe one user at a time

Creative combination of research methods is necessary



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# Questions?

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