

Terrapattern is the first open-access visual search engine for satellite maps

Machine learning is everywhere

By **Micah Singleton** on May 27, 2016 12:19 pm

The screenshot displays the Terrapattern interface. On the left is a satellite map of New York City with several red location pins along the Hudson River. The map includes a search bar at the top left containing 'v York City' and a zoom control at the bottom right. Below the map are links for 'landsat, New York GIS, Sanborn, USDA Farm Service Agency', 'Terms of Use', and 'Report a map error'. To the right of the map are two plots: 'Geographical Plot' and 'Similarity Plot'. The 'Geographical Plot' shows a small blue dot on a map of the city, representing the selected location. The 'Similarity Plot' shows a scatter plot of white dots with a blue dot in the center, representing the similarity of various features to the selected location. Below these plots is a 'Search Results' section displaying a grid of 20 small satellite images, each showing a similar geographical feature to the selected location. The first image in the grid is highlighted with a blue border.

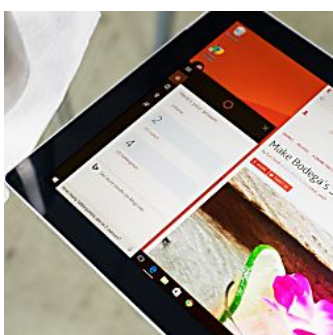
Terrapattern is an amazing visual search engine for satellite imagery, and somehow the first of its kind. It's very easy to use, click on a section of the map, and Terrapattern will show you all similar geographical features or landmarks in the area. A football field, bus station, outdoor pool — it doesn't matter, Terrapattern can pinpoint the related image and location with surprising accuracy.

The program was created by Golan Levin, David Newbury, and Kyle McDonald, with funding from the John S. and James L. Knight Foundation. Terrapattern is built on a Deep Convolutional Neural Network (DCNN), and has been trained to recognize geographical features within small squares in four cities — New York, San Francisco, Pittsburgh, and Detroit.

In an interview with *Popular Science*, Levin said he and the team built Terrapattern to open up the visual mapping search to a larger audience (the US Military has had similar tech for years), and hopes that it would eventually make it into other mapping platforms like Google Maps. "I wanted a way we could open this technology to everyone: citizen scientists, journalists and artists, or just everyday people who want to understand the world in a better way," Levin said.

You can test out Terrapattern [here](#) and check out the code on [GitHub](#).

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