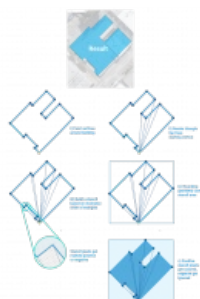


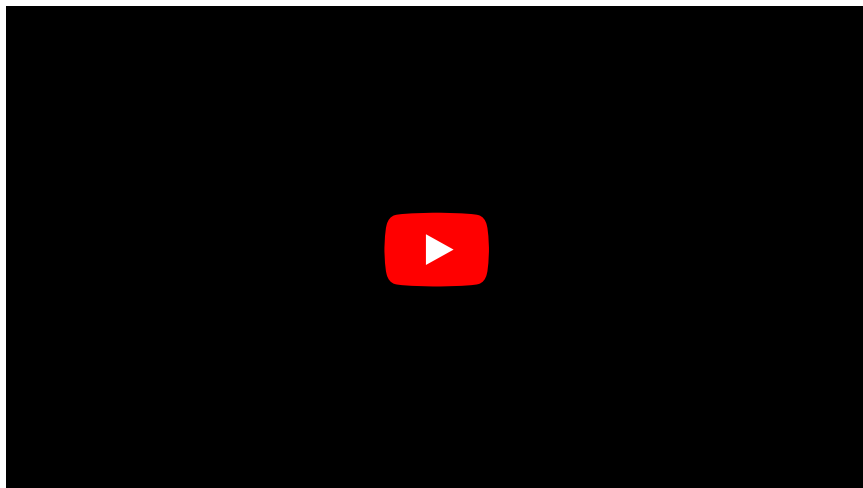
Making Geomatics Faster, Bigger and Cooler to Attract Young Talent



Although the geospatial industry is growing quite quickly and is expected to [reach US \\$439.2 billion by 2020](#), it is struggling to attract fresh talent, and [faces a shortage of mapping and surveying professionals](#) going into the field. One way to increase interest in mapping careers is by offering young students fun, hands-on opportunities to learn how cool geometrics can be.

By Justin Sears, vice president of product marketing, MapD

Today's technological tools make it much easier to show how hands-on geospatial analytics can be, and [MapD](#) version 4.0 is one such tool. The MapD Extreme Analytics platform offers real-time analytics with unprecedented speed and interactivity, and this latest version focuses on further enhancing those geospatial strengths. Users can see first-hand that geospatial analytics can be fast (with interactive geocharts and cross-filtering), big (billions of records) and interactive (dashboards refresh instantly after every query or interaction).



MapD makes data queries and visualisation as big and agile as a user's imagination by harnessing the parallel processing and visual rendering of graphics processing units (GPUs). GPUs have a long history of powering applications for massive parallel processing, complex image rendering and data-based visualisation, such as high-end computer gaming and supercomputing. In fact, MapD was designed from the beginning to harness those capabilities for a new type of analytics.

Massive, Zero-latency Queries on Geospatial Data

MapD 4.0 has a particular [emphasis on geomatics](#) through greater support for planar geometry types on the backend and with polygon rendering on the frontend. The first of those innovations is native support for geospatial data types in the [MapD Core SQL engine](#): POINT, LINESTRING, POLYGON and MULTIPOLYGON (vector data in GIS parlance). MapD processes SQL queries over multi-billion row tables and returns results in less than a second. Now with this new version, that horsepower is available for queries on geometric data types.

Native geo data types can be used in two common geospatial functions: ST_Distance and ST_Contains. ST_Distance returns the distance between two geographies, or, in the case of MapD, two billion geographies with real-time results. ST_Contains returns true for all geometries that lie entirely within another geometry.



Examples of ST_Distance and ST_Contains

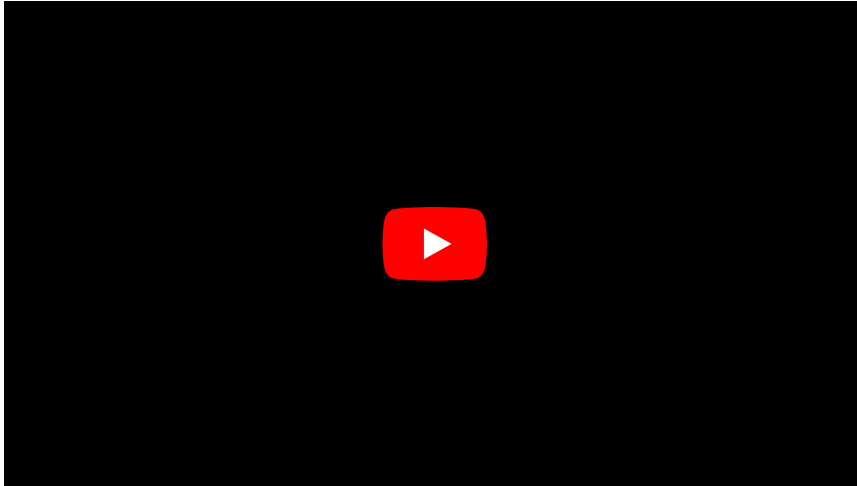
Real-time Interaction with Millions of Polygons

The MapD analytics platform also includes [MapD Render](#) and [MapD Immerse](#) for real-time visual interaction with extremely large amounts of data. These components make the SQL query results in MapD Core available very quickly for the equally fast visual interaction by the end user. Now that MapD can store native polygons in the analytics database, MapD Render and MapD Immerse allow users to click on each of those polygons in the web browser.



Polygon Rendering in MapD

In terms of attracting the attention of future mapping and survey professionals, it is worth noting that some students may feel comfortable writing SQL statements, but some may not. However, most will feel comfortable manipulating a web application like MapD Immerse, which generates the backend SQL as they interact with a frontend dashboard.

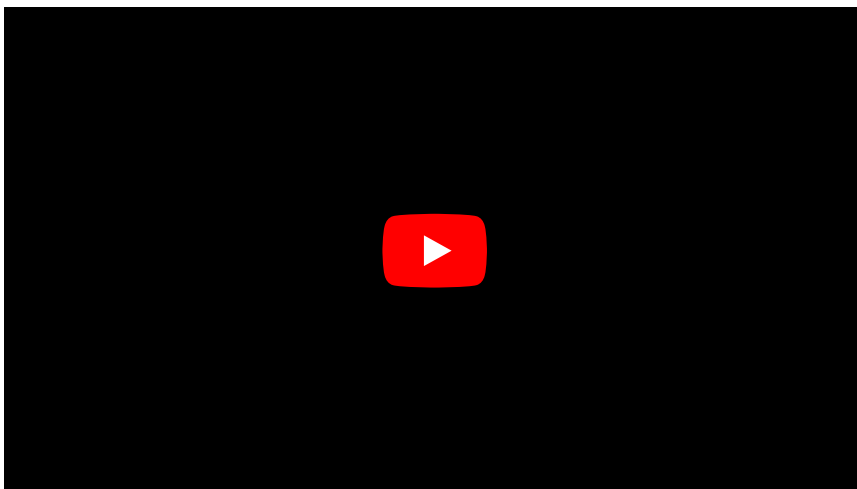


MapD version 4.0 breaks the speed/scale trade-off with other geospatial tools. As the amount of data grows beyond a few million records, those tools slow down. In contrast, MapD can render millions of polygons on the GPU and then send those to the MapD Immerse web interface as an interactive PNG (not as millions of separate polygon objects), enabling zero-latency interaction.

Bring Geospatial Analytics to the Masses

Students are not the only group of users who might appreciate tools such as MapD as a step towards a future career in geomatics. People who have chosen careers such as business analysts could be interested too, for example. Business analysts think analytically. They are curious, intrepid explorers looking for insights. Historically, they've seen geospatial analytics as a separate discipline with different tools, done by geospatial analysts or GIS analysts. But this is no longer the case. MapD 4.0 reduces the artificial (and fast eroding) distinction between business intelligence and GIS data. In fact, MapD's powerful cross-filtering capabilities show intuitively how location is related to anything else a business or government might care about in analytics.

For example, the following recording shows a user filtering geospatial data on almost 1.3 billion New York taxi trips, by other factors such as payment type, day of the week or historical time period.



So in bringing geospatial analytics to the masses, students should not be the only focus. Anyone who deals with fast visual interaction with extremely large amounts of data can move their existing careers in a more geospatial direction. With more geospatial generalists across many disciplines, millions more will find their way to careers as geospatial professionals.