

# Harvard University

Harvard University for many years had no geography department, yet faculties and students have played an important role in GIS and there is now considerable academic activity focused on interoperability. In the 1960s Howard T. Fisher (1903-1979), who directed the Laboratory for Computer Graphics (LCG) at Harvard Graduate School of Design (GSD), was a pioneer in adapting computerised technology to the field of geography. One of his students was Jack Dangermond, Harvard MLA 1969 and the founder of ESRI Inc.

## First Formal Course

With the death of Professor Fisher in 1979 operations ceased at LCG. In the absence of any course offerings in geography at Harvard, some graduate students of Professor Peter Rogers decided in about 1990 to learn GIS on their own. As a recent graduate MS Geophysics, I was one of the first participants in this effort. Although Professor Carl Steinitz at GSD used GIS on his courses in Landscape Architecture and Planning, it was only in 1995 that Paul Cote held the first formal course in GIS at GSD under the direction of Professor Stephen Ervin.

## OGC Member

In 1997 Professor Göran Ekström from the Department of Earth and Planetary Sciences and I started the Harvard GIS Colloquium Lecture series to promote collaboration at Harvard and with other institutions, giving the Harvard educational community the opportunity to learn from international GIS experts. In 1998 OGC president David Schell lectured in the Colloquium ([www.gis.dce.harvard.edu](http://www.gis.dce.harvard.edu)). Since 2000 Harvard has been a member of OGC. Professor Henry Leitner, director of Information Technology (IT) in the Harvard Division of Continuing Education (DCE) and myself as IT instructor at DCE put Harvard students in direct contact with software architects and developers and encouraged them to adopt interoperable standards. Students pursuing master degrees in IT began developing applications focused on testing and validating implementations of OGC geospatial standards. I contributed to the second chapter of the OpenGIS WebMapServer Cookbook.

## Inauguration

Following the first GIS Symposium at Harvard on 20th November 2002, Professor Peter K. Bol led the effort to establish the Center for Geographic Analysis ([www.gis.harvard.edu](http://www.gis.harvard.edu)). This was inaugurated in 2005 as part of the Institute of Quantitative Analysis, thanks to a faculty group led by then provost Steven E. Hyman and Harvard president Larry Summers, and to the vision and generosity of Jack Dangermond. Now various departments at Harvard and the Harvard Library have begun to embrace geospatial technologies and are increasingly using OGC standards. For example, at the Faculty of Arts and Sciences, Merrick Lex Bexman and Bill Hayes have developed a Geographic Information Sharing Tool using KML and GML. Paul Cote has helped develop the architecture for integration of CAD, GIS, and BIM (Building Information Models) as described in the OGC Discussion Paper entitled "OGC Web Services Architecture for CAD, GIS, and BIM".

## Interoperability

Using servers both at DCE and in the Department of Earth and Planetary Sciences, IT masters students are studying standards, interoperability and geospatial-rights management. Students and faculty members have begun participating in the OGC mass-market-geo forum. The outlook for increased adoption of OGC standards at Harvard University over the coming years is very promising, thanks to a combination of mature object-oriented and component-based technology and the existence of a supportive infrastructure with specialised personnel and resources.