**EXP: GeoGames – a virtual simulation workbench for teaching and learning through real-world geography**

**Summary**

In this *exploration project* we primarily address the need to develop and explore innovative use of geospatial and gaming technology for teaching and learning of complex interdisciplinary subjects. Geospatial technologies are currently revolutionizing our workplace and everyday life—with profound implications for information management, governance, business, and leisure. Google Earth has been described as the democratization of geographic information and the U.S. Department of Labor has identified Geospatial Technology as a high growth sector that require new skills sets for existing and emerging businesses.

In this project we blend information, communication, and learning technologies (ICLT) with educational strategies to give users a richer and more personalized experiential understanding and appreciation for the complex interactions of human and physical dimensions of the Earth. Building on our existing “GeoGame” prototype framework we further develop and design a web-based platform that merge Massive Multi-player Online Game (MMOG) software with online Geographic Information Systems (GIS), mapping, and sensor technology, creating a learning environment that allow users to easily experiment and interact with real-world data and simulation models established by and for experts. In order to better understand how people learn with technology, we will also make rigorous assessment of the impact of the proposed platform on student learning, engagement, and attitudes towards subjects taught.

**Intellectual merit**

The project engages experts in Geography, Computer Sciences, and Education, as well as practitioners from K-12 education, industry, and professional society. We will provide first insights into the creation and use of a new generation of learning technology that not only deliver the strengths of geospatial, gaming, and social networking capacity, but create an entirely new web platform. This environment will become a highly adaptable workbench and authoring environment where learners and instructors can create and explore geographic information in an engaging context of realistic scenarios through gaming simulations. Our research will contribute to much needed research on educational practices for cyberlearning, including empirical results from trials in authentic instructional environments and recommendations for implementation.

**Broader impacts**

The results of this project will contribute to the development of a new generation of learning tools that will give students a richer and more experiential understanding of the world, adaptable to support a wide range of subject areas and teacher preferences. As such it will provide the necessary foundation for broader testing, development and dissemination across the nation. The wide reach and accessibility of the proposed learning environment can radically transform the way citizens engage in local, national, and global issues, giving everyone access to the world, thus promoting an actively engaged citizenry.

As part of this project we will collaborate closely with the OSU Digital Union to continue
developing a vibrant and cross-disciplinary community of practice around cyberlearning research and practice at the Ohio State University including not only researchers in cybertechnology and education, but across the disciplines in Engineering, Humanities, and the Arts and Sciences. We will also prepare for larger dissemination by collaborating closely with the Ohio Geographical Alliance, an outreach arm of the National Geographic Society, that is devoted to enhancing geography, as both a physical and social science, in Ohio's K-12 curriculum. It is a partnership that includes K-12 teachers and university geography professors who work together in pre-service, in-service, materials development and public engagement activities.

In addition to the graduate students directly involved in the research and development activities, the close integration of this project with ongoing instruction and assessment allow us to get a large group of university graduate student instructors involved and engaged in the scholarship of teaching and learning.