

Zsolt LAVICZA – Balázs KOREN – István JUHOS – Kristóf FENYVESI

***Developing Interactive and Visual Teaching and Learning Resources
for K-12 STEM Education in Hungary***

Technology is increasingly becoming an important part of STEM teaching and learning in the 21st century. There have been numerous attempts to integrate technology into education systems, but without serious development and research the success of these attempts have been limited. Recently, together with colleagues in Hungary, we started a project called GeoMaTech to develop high-quality interactive and rich-visual teaching and learning materials for all grades in schools in Hungary. These materials (1200+Mathematics, 600+Science) will be embedded into an on-line communication and collaboration environment. In addition, we will offer 60-hour professional development courses for more than 2400 teachers in 800 schools in Hungary. Furthermore, we will organize a wide-range of teacher and student activities including competitions, maths and science fairs, and develop a network of schools for the long-term sustainability of the GeoMaTech project. The technology background of the project is offered by GeoGebra (<http://geogebra.org>), which is an open-source, dynamic mathematics software used by more than 30million students and teachers around the world. All activities of the GeoMa Tech project will be assisted and evaluated by a research team and pedagogical resources will utilise highly-respected thinkers such as Pólya, Lakatos, Varga, Dienes as well as successful technology integration programmes from other countries.

Zsolt LAVICZA, Dr.: After receiving his degrees in mathematics and physics in Hungary, Zsolt began his postgraduate studies in applied mathematics at the University of Cincinnati. While teaching mathematics at the University of Cincinnati he became interested in researching issues in the teaching and learning of mathematics. In particular, he focused on investigating issues in relation to the use of technology in undergraduate mathematics education. Since then, both at the University of Michigan and Cambridge he has worked on several research projects examining technology and mathematics teaching. Currently, Zsolt is working at the University of Cambridge, offering research support for the International GeoGebra Institute, and serves as a Director of Research at the GeoMaTech project in Hungary. E-mail: zl221@cam.ac.uk.



Balázs KOREN teaches mathematics education (including computer aided learning) at ELTE University, and mathematics (grades 9–12) at Fazekas Mihály School in Budapest, all the while working towards his PhD in mathematics education. He is a member of the GeoGebra Team, and has been invited to talk at conferences around the world to share his knowledge and experience on using technology in the classroom. He also works on the GEOMA TECH project, whose goal is to use technology to improve K-12 STEM education in Hungary. E-mail: balazs.koren@gmail.com.



István JUHOS received his PhD degree in computer science from the University of Szeged, Hungary. He has number of relevant degrees in mathematics and computer science, moreover he held various courses in these topics at the University of Szeged for 15 years. Besides leading numerous theoretical and applied research and development projects and publishing scientific papers, he is member of several international journals and conference committees, coordinating different educational and development projects, such as the GEO MATECH countrywide governmental project in Hungary. E-mail: istvan@geomatech.org.



Kristóf FENYVESI, PhD, b. 1979, is a researcher of contemporary culture at University of Jyväskylä's Department of Art and Culture Studies; director of community events at the world largest art and mathematics community, the Bridges Organization (www.bridgesmathart.org); chief executive officer of International Symmetry Association (www.symmetry.hu) and director of Experience Workshop (www.experienceworkshop.hu). His main areas of research are connections between arts, culture, mathematics and education; interdisciplinary aesthetics and philosophy. E-mail: fenyvesi.kristof@gmail.com.

