

SPREADSHEET AS AN ALGORITHM VISUALIZATION TOOL

Gábor TÖRLEY, Péter BERNÁT, HU

Abstract: This paper first presents the definition of algorithm visualization (AV) and its potential in increasing students' engagement in the learning process according to Bloom's taxonomy. Then it demonstrates in detail that not only can spreadsheet develop and support computational and algorithmic thinking, but it can also be used as an AV tool. Authors give examples as well on how learners can reach increasing levels of engagement using spreadsheet as an AV tool.

Keywords: spreadsheet, algorithm visualization, computational thinking, algorithmic thinking, programming

References

1. NAPS, T. L. – ROSSLING, G. – ALMSTRUM, V. – DANN, W. – FLEISCHER, R. – HUNDHAUSEN, C. D. – VELAZQUEZ-ITURBIDE, J. Exploring the role of visualization and engagement in computer science education. *SIGCSE Bulletin*, 2003, 35(2), 131– 152
2. ANDERSON, L. – KRATHWOHL, D. – AIRASIAN, P. – CRUIKSHANK, K. – MAYER, R., PINTRICH, P. – RATHS, J. – WITTROCK, M. *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*, Complete Edition. Longman 2001
3. HUNDHAUSEN, C. – DOUGLAS, S. A – STASKO, J. T. *A meta-study of algorithm visualization effectiveness*. *Journal of Visual Languages and Computing*, 2002
4. SZALAYNÉ TAHY, ZS. How To Teach Programming Indirectly – Using Spreadsheet Application. *Acta Didactica Napocensia* 9 (1), 2016, 15-22, ISSN 2065-1430
5. CSERNOCH, M. – BIRÓ, P. *Sprego programming*. *Spreadsheets in Education (eJSiE)*: Vol. 8: Iss. 1, Article 4., 2015 <https://sie.scholasticahq.com/article/4638-sprego-programming> (Retrieved: 19.07.2021.)

Contact address

Gábor Törley, PhD., ORCID: 0000-0002-0496-936

ELTE Eötvös Loránd University, Faculty of Informatics

Address: H-1117 Budapest, Pázmány P. sétány 1/C, Hungary

e-mail: gabor.torley@inf.elte.hu

Péter Bernát, PhD., ORCID: 0000-0002-3759-264X

ELTE Eötvös Loránd University, Faculty of Informatics

XXXIV. DIDMATTECH 2021, EÖTVÖS LORÁND UNIVERSITY (ELTE)
FACULTY OF INFORMATICS, SAVARIA INSTITUTE OF TECHNOLOGY

Address: H-1117 Budapest, Pázmány P. sétány 1/C, Hungary

e-mail: bernatp@inf.elte.hu