

ALGORITHMS AND SOFTWARE SYSTEMS FOR LEARNING AND RESEARCH

A DISSERTATION
SUBMITTED TO THE GRADUATE SCHOOL
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DOCTOR OF EDUCATION

by
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DISSERTATION ABSTRACT

Title: Algorithms and Software Systems for Learning and Research
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Software systems have experience and impressive development in the last few decades and have impacted a wide variety of areas. In this respect, two fields benefit greatly. Learning and research. In this work, we present several software systems that we have created to assist in the process of learning and to help researchers by performing complex computations and generating data. We demonstrate three web-based educational video games that we developed to teach science to middle school students. We also describe several software systems that we created for research in graph theory and model checking. Finally, we discuss our results, contributions and future direction.