**JumpingSymbols: Making Mathematics and Computing Come Alive**

**(a never-ending project started in 2010)**

This software has undergone numerous revisions since its incarnation in 2010. The goal was to construct an interactive environment for people to learn how to simplify and manipulate algebraic expressions. The software was produced while I was at the University of Florida, and was released back to my intellectual property after an invention disclosure process. The software began in Silverlight and then progressed to Java and then to Javascript with the idea of making it widely available for students.

I am opening up the software using the GPL v3 license (see the file), and putting it on GitHub.

I would like to acknowledge the significant help and time of those who tested and worked on this software including the following students: Dunam Kim, Hyunhwi Kim, and Ramin Tadayon. Without their work and dedication, the software would not have only been a dream. Julie Henderson (P. K. Yonge Development Research School) provided many excellent ideas on the pedagogical design of the prototype.

**Philosophy**

I have always had a concern with the need to make formal languages, such as mathematics, come alive. The symbols should be able to move and be manipulated—just like real objects. At the same time, only valid operations should be allowed during manipulation. This philosophy began as aesthetic computing and documented in various forms since the late 90s. Also, there should be feedback as to whether moving something here or there is done according to a specific rule to be learned (e.g., commutativity).

**Searchable Published References (P. Fishwick)**

* Creative Automata Lab Blog: creative-automata.com
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* 2008: Software Aesthetics, Int. J. of Arts & Technology
* 2008: A 3D Environment for Exploring Algebraic Structure and Behavior, in Handbook of Research in Effective Gaming in Education
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