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Open Source Continuum Crowds on the CPU & GPU

Our research this summer has been to develop open-source (free to use and modify) code for CPU (computer) & GPU (graphics card) implementations of the “continuum crowds” algorithm, which is useful for simulating crowds of hundreds or thousands of people navigating towards their goals while avoiding each other. The algorithm is faster and more accurate than the current most commonly used algorithm (called “A*” / “A-star”), but is not used as often due to its relative novelty and complexity.

To address these issues, we have been coding on our own version of the algorithm, carefully explaining in our comments what each part of the algorithm does and providing built-in visuals to see the algorithm in action. At the end of the summer, we will publish our work online for use by anyone interested in exploring continuum crowds on their own.

As of the end of July, 3 out of our 4 versions of the algorithm are in good working order, and we have explained some of the more difficult parts of the algorithm. We're unsure if we'll be able to finish the rest of what we planned in the next few weeks, so our priority is to finish the comments and publish our work, finishing the last version only if we have time. Regardless, we'll be presenting a poster of our work at the SC’14 conference in New Orleans this November.

Personally, as a first-time researcher, it's been exciting to have 8 hours a day to work on a project I enjoy, and watch it grow from nothingness to near completion, with the knowledge that I'm actually doing something useful for the scientific community at large.