Funding Landscape for Game-Related Research

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The military is becoming a hungry user of game technologies. Games are following an adoption path similar to that of Virtual Reality and 3D graphics in the 1990’s. Those created the entire filed of “Virtual Simulation” that are a major part of our training systems today. “Game Technologies” are offering better graphics, better user interface designs, better physics models, more compact AI, and networking to form ad hoc teams. As society in general and the military in particular overcome the stigma of “a kids toy” associated with games, the adoption of these technologies will become more widespread.

This briefing identifies the kind of funding that has been available for research in computer games within military offices. This kind of work is one indication of what the military will support in the future. The briefing also paints a picture of a future in which every soldier has a personal simulator, a system which will probably contain a number of game technologies. We pose the question: What kind of game engine can be created to support 316 different kinds of military jobs?
The military has funded a number of research projects that involved computer gaming. In most cases, this work has been pursued by a small group of boutique companies that have experience with both entertainment games and military simulation. This short list shows just a few organizations that have offered research projects and that will most likely continue to do so.
MG Kamiya, Director, Joint Warfighting Center
Games make it possible for every soldier to have his own simulator.

Notes

MG Kamiya, Director of the Joint Warfighting Center, has compared computer games to the rifle and the radio. Every soldier has had his own weapon for decades/centuries. But every soldier did not get a radio until very recently. Computer games may make it possible for every soldier to have a personal simulator/training device just as he has his own weapon and radio today.
One Million Soldiers

Army Size*
- Regular Army: 507,082
- Army National Guard: 333,177
- Army Reserve: 189,005
- Total: 1,029,264

*Numbers as of: Regular Army, 2007; ARNG & USAR, 2005

There are over one million soldiers in the Army. Can you imagine a world in which each of them has a personal training device? To what degree can this device be built from or include computer game technologies?

Sources:
As of March 31, 2007, the Regular Army reported a strength of 507,082 soldiers.[2] By the end of 2005, the Army National Guard (ARNG) reported 333,177 and the United States Army Reserve (USAR) reported 189,005,[3] putting the approximate combined component strength total at 1,029,264.

A soldier's job is defined as his Military Occupational Specialty (MOS). There are over 316 of these specialties currently on the books. Very few of these jobs are trained via a simulator. But how many of these jobs are addressable using simulation/gaming systems?
That is a really long list.
In the past we have focused all of our simulation funding on systems that train "the trigger pullers". These are the people directly involved in combat and whose lives are on the line if they make a mistake. The high cost of these systems has made it economically impossible to extend these kinds of systems to all soldiers and all MOS'. Computer games may offer a lower-cost solution which would allow us to work our way down the curve creating systems for significantly lower costs.

In this world “The Long Tail” refers to all of the military jobs that are too specialized, too few, or too unique to be able to afford a computer-based simulation or game. If we could find a way to use a common game engine for multiple jobs we might be able to create mods for unique jobs at very low cost.

Note: “The Long Tail” was proposed by Chris Anderson in a 2004 Wired magazine article and later in a book. The application of the term here is a slight twist on his original meaning.
http://www.wired.com/wired/archive/12.10/tail.html
The military, and particularly the US Army, has already developed and fielded a number of games for training. Though we continue to create combat-focused games, we are also beginning to apply the technology to other jobs like social interactions and combat medics. There are potentially many more non-combat applications than combat applications.
Is it possible to create a game engine that is flexible enough to be applied to multiple applications in different areas? There is certainly not “one game engine to bind them all”, but there is also no need to create 316 unique game products to serve 316 job descriptions. There has to be some reusability across applications. Multiple games will also call for interoperability among these games – another reason to keep the lower layers of the software product generic or common.
Military customers are also becoming very interested in the tools that are used to create databases/levels/scenarios for the game. If soldiers are equipped with a personal simulator, then they need to be able to use tools to create the scenarios they are interested in playing – as well as downloading professionally created scenarios.

Once a scenario is run, soldiers need to be able to understand their performance. What did they do right? What did they do wrong? How can they improve? This data will also be shared with trainers who can help them improve.
We certainly are **NOT** going to use **LESS** game technology in the future.