The Ars Electronica Futurelab and Salzburg University of Applied Sciences Are Blazing Trails into the Future of Digital Entertainment Technologies

(Linz, March 18, 2011) Playful research that doesn't just aim to entertain is what the Center for Advances in Digital Entertainment Technologies is all about. The mission: take the latest breakthroughs in full-body & gesture tracking, bio-signal sensor systems and 3D technology and utilize them in projects beyond the realm of the computer game sector.

The Computer Game Industry as Driving Force for Innovation

30 years after the advent of a yellow, 8-bit pill-popper named Pac-Man and a quarter of a century after Nintendo's iconic plumber Mario made his first house call, digital entertainment technologies have firmly established themselves in our recreation rooms. The computer game industry has become the driving force behind some very promising and fast-growing high-tech developments that are right in touch with what consumers want—for instance, in the area of 3D graphics, sensor-based controls, and interaction in virtual worlds in which gamers bring their whole bodies into play and thus completely dispense with buttons and controllers.

Peering into the future of this sector confronts us with some interesting questions. How can a human being be translated into a 3D avatar displayed on a monitor screen? How can "real" and digital environments be blended into smoothly compatible worlds of experience? How can interactive group events be optimized through the use of motion sensors and tracking systems? And in what ways can the cutting-edge technologies used in the entertainment industry also be applied in other areas?

CADET – Center for Advances in Digital Entertainment Technologies

To answer these questions, the Ars Electronica Futurelab and the Salzburg University of Applied Sciences' Department of Multimedia Technology and Multimedia Art have launched CADET–Center for Advances in Digital Entertainment Technologies. Funding provided by the FFG–Austrian Research Promotion Agency's Cooperation & Innovation program has been earmarked to subsidize targeted R&D projects designed to strengthen Austria's effort to make digital entertainment even more attractive for the end-user. Another part of CADET's mission is to identify promising application possibilities for innovations in the computer game industry and to develop supplementary software packets that make existing hardware usable by small and mid-size companies in Upper Austria and Salzburg. An excellent recent example was the Kinect infrared sensor camera for Microsoft's XBox 360—within 25 days of the device's market debut in late autumn 2010, 2.5 million units were retailed. The technology behind its success is Structured Light, which makes it possible to precisely read physical movements and thereby implement intuitive control by players' bodies. Media artists associated with Ars Electronica have long been dealing with this Kinect technology, hacking it and creatively adapting it for use in their own projects. Now, CADET's aim is to expand this circle of users. The CADET staff is currently experimenting with an additive

software system designed to get Kinect into the swing of things for motion-capturing procedures far beyond the realm of XBox. The goal is to make capabilities like automatic facial recognition, 3D motion tracking and mixed reality applications affordable for small-scale productions—anything ranging from film projects to interactive service terminals in public places.

Technology Transfer in Upper Austria's Private Sector

As the go-to source of expertise in digital entertainment technologies, CADET has also been set up to provide consulting services and partner with local organizations and firms. "Since we're able to take computer gaming technologies that are otherwise very expensive and not readily available, and produce add-ons that make them much less costly and more flexible, we can impart some real stimulus to the regional economy. We particularly want to reach out to small and medium-size enterprises in the creative sector," said Christopher Lindinger, director of CADET's facility at the Ars Electronica Futurelab in Linz. "There are a few associates who are closely following what we've been up to, and I'm very much looking forward to going public in the near future with some really exciting updates about follow-up projects with tremendous social relevance."

$20,000 Prize for SwimBrowser

One example of developments that initially emerged as spin-offs of the computer game industry and were then taken to the next level to appeal to a totally different group of users is the SwimBrowser by David Stolarksy, an Ars Electronica Futurelab staffer. His vision of a Web browser of the future is based on Kinect technology, and makes it possible to navigate via gestures and arm movements that resemble a swimming stroke. Users can activate links, employ zoom functions or open up new tabs without a single mouse click. SwimBrowser was honored with the $20,000 grand prize at the OpenNI 2011 Developer Challenge in late February. OpenNI—an abbreviation for natural interaction—was launched in November 2010. This non-profit organization was established by the computer game industry to nurture innovative interaction scenarios and implement them in market-oriented applications.

Center for Advances in Digital Entertainment Technologies (CADET): www.cadet.at
SwimBrowser (Video): http://www.vimeo.com/20255369
Ars Electronica Futurelab: http://new.aec.at/futurelab/en/forschung/
Open NI: http://www.openni.org/