



Game research  
for training and  
entertainment

## The GATE way

The GATE (Game Research for Training and Entertainment) project is an implementation of the research agenda originally set up by AGS, the Center for Advanced Gaming and Simulation. The goal is to develop insight and technology that can be used both in the entertainment gaming industry and in the serious gaming industry, with a special focus on learning and training experiences. Success factors for effective gaming and training transfer are:

- Realistic and challenging problem situations and scenarios.
- Realistic behavior of computer controlled entities.
- Realistic modeling, visualization, and simulation of the environment.
- A high level of interaction.
- Options for analysis of skills, effectiveness of procedures, fitting with training goals.

Under the strong but open leadership of Mark Overmars (recently listed by the magazine GameDeveloper as one of the 50 most influential game developers in 2010), three strands of activities flourish in pushing game technology: pilot projects, research work packages, and knowledge transfer projects. This results in a diverse, multi-faceted project, see the accompanying still from the GATE

movie (to be found at

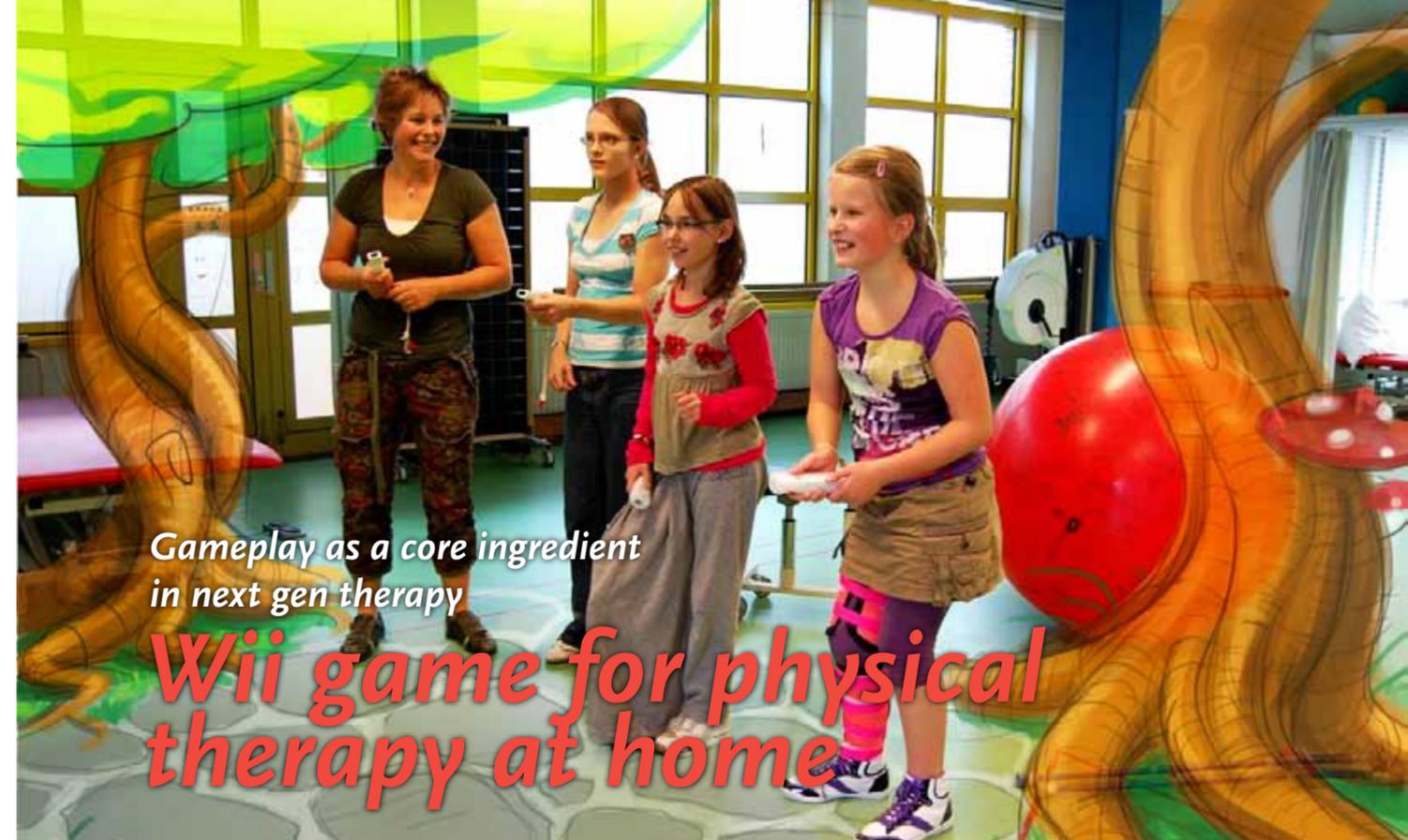
<http://gate.gameresearch.nl/>). This is the GATE way: a lot of freedom to excel in many different ways, without much overhead and interference. Indeed, the GATE project is well on its way, according to the international review committee. It is gaining impact now that results from research come available, and find their way into knowledge transfer projects, stimulated by the initial pilot projects.



The four existing research themes (Modeling the virtual world, Virtual characters, Interacting with the world, Learning with simulated worlds) will organize workshops with the aim to develop a vision on game research and innovation for the next decade. This will lead to a new research agenda which again should be implemented by one or more GATE-like projects. The future beckons.



Remco Veltkamp  
Utrecht University



**Affordable off-the-shelf motion controlled game hardware and the rise of motion based gameplay enable the application of games in physical therapeutic settings. Not only in hospitals, but also at home...**

The goal of the GATE Wiihabilitation pilot, carried out by the Applied Game Design R&D program of Utrecht School of the Arts (HKU), is to research and demonstrate the potential of the application of entertaining and affordable motion-based gameplay in rehabilitation. This is done by the development and validation of a prototype for a motion-based game aimed at children that are suffering from Acquired Brain Injury (ABI). The game will address a range of physical therapeutic goals using affordable off-the-shelf motion controlled game hardware and peripherals. The offered gameplay, designed by lead designer Niels Keetels, will be not only be highly entertaining but also adaptable to specific therapeutic needs and usable in both care centers and home settings. This way the patients can also play with their family and friends.

Since the costs of healthcare are expected to increase substantially in the next years, the healthcare sector is looking into the possibilities of transferring parts of the care to the home setting. Game assisted physical therapy is expected to

be one of the core ingredients in this transfer. Together with patients, therapists and experts HKU's Applied Game Design R&D team has identified several challenges that have to be met in order for this transfer to become a success: the quality of the game experience should resemble that of a popular commercial motion controlled videogames and the hardware and peripherals should be affordable and easy to use. Also, the gameplay should be adaptable to a range of therapeutic goals and respect asymmetry in background, gaming literacy and physical abilities of both patients and their friends and family. The game will have to provide possibilities to monitor use and therapeutic progress. Last but not least the gameplay needs to be build upon a thorough understanding of physical movement in relation to gameplay.

### Gameplay as a core ingredient in next gen therapy

If we are to develop game assisted physiotherapy to the next stage, we not only need to demonstrate we can successfully design and apply gameplay in the context of home based physiotherapy, but we also need to prove to both the market and the healthcare sector that Wiihabilitation is commercially viable. The final result of this Pilot will be a fully playable and validated game demo that addresses the challenges identified

above and enables the dissemination of knowledge developed in regard to game assisted physical therapy at home. We will also validate the prototypes and game in its context of use, and showcase the potential of games for next gen therapy. The gained knowledge will be aggregated and disseminated to the healthcare sector and the creative industries in the form of demo's, papers, presentations, workshops and symposia. Finally, we will conduct market research and develop a business case in close contact with the sector and publishers.

Jeroen van Mastrigt-Ide

Professor (lector) Jeroen van Mastrigt-Ide heads HKU's Applied Game Design R&D program. The program is involved in several R&D projects that apply creative game design to real world goals. The group integrates creative design and research and works on innovative game applications with partners like TNO and TFI, the program is involved in the Expertise Center Games and Game Design (EGG). Jeroen is a renowned visionary thinker and serial pioneer: he co-founded a.o. the Dutch Game Garden, HKU's game design education and the Internet technology company GX.

