Audio transcript of Émilie Hummel's audio interview

My name is Émilie Hummel. I've just finished my thesis in the Seamless team at the Inria center at the University of Rennes, and my thesis focused on the use of virtual reality and the improvement of tools for cognitive rehabilitation and professional reintegration for patients with cognitive disorders following breast cancer. Cognitive impairment is also a cognitive complaint expressed as a slowing down of the brain, a feeling of no longer being able to concentrate or function properly. This happens after cancer treatment, after chemotherapy for example.

In concrete terms, I worked on a prototype for a virtual reality application with three cognitive tasks that resemble tasks you might do in the office, at work, and which train different cognitive functions to actually help them retrain and facilitate their professional reintegration. Administrative tasks, which are common to many jobs, such as sorting files and invoices, planning the calendar for the place where you work, or remembering things to do later in the working day.

And I've evaluated this prototype in several studies, with and without patients. My thesis is funded by Inria Rennes, but also by Inserm, and I'm supervised by computer experts. So Valérie Gouranton and Anatole Lécuyer, but also a doctor from the C.H.U. in Rennes, Mélanie Cogné, and a neuropsychologist from the Baclesse center in Caen. Thanks to her, we were able to make contact with both patients and healthcare professionals.

The question I've been working on for three years, in this context of professional reintegration after cognitive disorders, is in fact to integrate the psychological state of virtual reality users into their experience, and therefore to take them into account when adapting the virtual environment, the simulation or trying to have a positive effect on it. It's going to be the emotional state, everything that's emotion, but also stress and that sort of thing, but also states related to cognition. So, for example, mental load, attention, that sort of thing.

So in my protocol, I'm looking to integrate these states to enhance and improve the virtual reality experience. As I said, this work has given rise to a number of studies. One is still in progress, so we've entrusted our prototype to the Baclesse center so that they can test it with patients. So I hope that after my thesis, there will be people to continue this work, to improve these rehabilitation tools, and perhaps that they'll move out of research and into care centers.