PROGRESS REPORT: BCBT2014 summer school

1. STUDENT IDENTIFICATION

I graduated with a degree in Applied Computer Science (Dipl.-Inf.) focusing my studies on artificial intelligence and cognitive neuroscience. In my diploma thesis, I developed a cognitive emotional neuronal network simulating the brain areas amygdala and hypothalamus. This neuro-computational model is based on new neuro-anatomical and physiological insights that aim at bridging the gap between classical conditioning tasks and goal-directed learning, thereby leading to the emergence of cognitive-emotional processes.

Currently, I am working as a scientific associate at the Chair of Process Automation Technology at Chemnitz University of Technology in the junior research group "The Smart Virtual Worker".

2. SCHOOL EXPERIENCE AND CONTRIBUTION

Research interest

In the project „The Smart Virtual worker“, we are developing a digital human agent simulating a worker in industrial operations. In this context, my colleague and I am designing an emotional-cognitive architecture including concepts for recognition, learning and feeling from the sciences artificial intelligence, psychology and neurosciences. In this architecture, a cognitive and emotional model influences and improves the decision making of the virtual agent based on a hierarchical reinforcement learning algorithm. Therefore I am very interested in research including this topics.

Reason for participating in BCBT2014

My application for the Summer School “ Barcelona Cognition, Brain and Technology” has been motivated by following aspects. First, my research and great interest in cognitive architectures especially architectures including emotions. Second, my experience in combining scientific findings of different fields, e.g. neuroscience, artificial intelligence and psychology. And third, my conviction that this combination is able to improve our understanding of human cognition and intelligence and moreover transferred in engineered systems enhances human-robotic interaction in an intuitive and easy understandable way for humans. In fact, I applied to gain further insights into the brain functions of perception, cognition and action and their conversion in engineered systems for using this in our emotional-cognitive architecture and my doctoral thesis.
How did BCBT2014 contributed to your education

The BCBT summer school was an exciting and excellent experience for me as participant and researcher. The talks were very good and I gained new insight in the evolutorial and developmental theories and their transfer in neuronal networks. Primarily, the interruptions by questions and the discussion afterwards created an interacting atmosphere emphasized the important facts, made these facts more understandable or gave a deeper comprehensive of the up-to-date research questions in the presented research field. Therefore, these talks established a brilliant basis for further discussions and conversations during the breaks and the social events in the evening.

Certainly, the most important and exciting experience for my education was working on our project especially with the XIM. It was a great experience working with such a mixed reality scene including planning and executing a real experiment with this unique room. Therefore it was a really inspiring experience, which hopefully ends in an experiment corroborating hypotheses of our own emotional model.

In summary, I am very grateful for the great experience be participated at the BCBT2014, especially for the new, nice and important contacts with other participants and outstanding researcher at the BCBT2014, which makes the summer school not only to an informational but also to an awesome social event.