IMI RESEARCH SEMINAR

DATE: 18 November 2014, Tuesday
TIME: 11:00 am – 12:30 pm
VENUE: IMI Seminar Room, Research Techno Plaza, XFrontiers, Level 03-01
50 Nanyang Drive, Singapore 637553
*Lunch will be served

Dr Zerrin YUMAK
Research Fellow,
IMI

Multi-modal and Multi-party Interactions with Virtual Humans and Social Robots

Virtual characters and robots interacting with people in social contexts should understand users' behaviors and respond back with gestures, facial expressions and gaze. The challenges in this area are: 1) estimating high level user states based on low level multi-modal sensory input, 2) taking socially appropriate decisions using this partial sensory information and 3) rendering synchronized and timely multi-modal behaviors. Moreover, these characters should be able to communicate with multiple users and also among each other in multi-party group interactions. In this talk, I will provide a short overview of the challenges in the area multi-modal and multi-party interactions. I will also mention our current work and point out the future research directions.
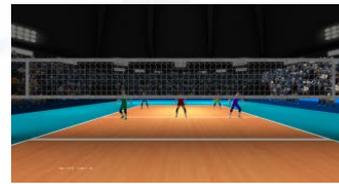
Dr Samuel LEMERCIER
Research Fellow,
IMI

Sense of Presence when Surrounded by Virtual Humans

The effectiveness of virtual environments has often been linked to the sense of presence reported by users of those virtual environments. Presence studies look investigate the phenomenon of acting and feeling that we are in the world created by computer displays. We propose to study relations between virtual humans and sense of presence in immersive environments. We particularly consider how surrounding virtual humans can increase the sense of presence compared to virtual humans located in front of us. We carry out an experiment in which participants had to interact with surrounding virtual humans throughout a volley-ball game in an immersive environment.

Athirai Aravazhi IRISSAPPANE
PhD Student, SCE / IMI

A POMDP Based Approach to Optimally Select Sellers in Electronic Marketplaces

Selecting a seller in e-markets is a tedious task that we might want to delegate to an agent. Many approaches to constructing such agents have been proposed, building upon different foundations (decision theory, trust modeling) and making use of different information (direct experience with sellers, trustworthiness of other buyers called advisors, etc.). Here, we propose the SALE POMDP, a new approach based on the decision-theoretic framework of POMDPs. It enables optimal trade-offs of information gaining and exploiting actions, with the ultimate goal of maximizing buyer satisfaction. A unique feature of the model is that it allows querying advisors about the trustworthiness of other advisors. Evaluation on the ART testbed demonstrates that SALE POMDP balances the cost of obtaining and benefit of more information more effectively, leading to more earnings, than traditional trust models.
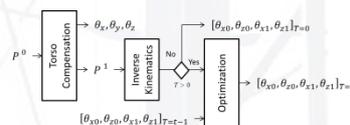
GU Yuanlong William
PhD Student,
MAE / IMI

Perception-linked Behavior Model: Shadowing Framework

Telepresence robot is an emerging distance telecommunication medium where it empowers the user to explore and interact with the remote environment. However, face-to-face communication is still the de-facto communication medium as it provides both verbal and nonverbal information. In many studies, nonverbal communication was shown to be an important aspect in social interaction. In summary, existing telepresence robot design has a number of social gaps, notably the lack of nonverbal communication. Thus, EDGAR an individualistic anthropomorphic telepresence robot was proposed and developed while a operator's interface known as shadowing (term taken from movie "Real Steel"), a contactless natural interface, to control EDGAR. Shadowing was not a new concept, and it was demonstrated in other studies. However, those experiments were conducted either in a smaller scale robot with lesser DOF, without detail descriptions of the framework or its problems. Hence, this presentation illustrates the framework of shadowing and discusses a few encountered challenges.

Please click here to register