МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
СУМСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ
ФАКУЛЬТЕТ ІНОЗЕМНОЇ ФІЛОЛОГІЇ
ТА СОЦІАЛЬНИХ КОМУНІКАЦІЙ

СОЦІАЛЬНО-ГУМАНІТАРНІ АСПЕКТИ РОЗВИТКУ СУЧАСНОГО СУСПІЛЬСТВА

МАТЕРІАЛИ ВСЕУКРАЇНСЬКОЇ НАУКОВОЇ КОНФЕРЕНЦІЇ ВИКЛАДАЧІВ, АСПІРАНТІВ, СПІВРОБІТНИКІВ ТА СТУДЕНТІВ

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such toys are well known Furby and Pleo. They look like animals, have their own specific language, react to the touches and even communicate with their congeners.

This year ToyTalk and Elemental Path have run their startups. It is the start of the new stage of the smart toys' age. The first toy is Hello Barbie doll and another one is a cute green 3D printed dinosaur from CogniToys. Both of them have similar sowftware and hardware. They are speech enabled, Internet connected, personalized and educational. The difference between an intelligent personal assistant and these toys is that the last ones are for kids. You have to press the belly to initialize the conversation with the toy, then you ask the question and wait for an answer. To find out an answer Hello Barbie is connected to ToyTalk servers and CogniToys to a Watson cloud computing service. Thanks to IBM Watson Dino is much more powerfull. It can also tell, create and listen to jokes or stories, play interactive games and ask the questions to educate the child. Every toy remembers its owner and grows with him or her.

Despite a large number of positive aspects there are a few disadvantages, such as privacy policy (especially for Hello Barbie), so creators are working hard to solve it. Developers tell gathering information is necessary for further improving toys, but parents are allowed to get access to it. They can also add in personal information about their child, check in the education progress and choose content priorities for the conversation. Some people also criticize the absence of traditional, imaginative methods of the play. It's not a problem, because children can use either traditional way or Internet connected mode to play with a toy.

The age of smart toys has already began, so we can only watch where it will lead and what will be the next stage.

PROGRESS IN SYSTEM MANAGEMENT TRENDS IN THE ALLOCATION OF RESOURCES FOR MULTISERVICE TELECOMMUNICATION NETWORKS

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The successful operation of peer-to-peer network depends on the resilience of its peer's communications. On the Internet, direct

communications between peers are often limited by restrictions like NATs and traffic filtering. Addressing such problem is particularly pressing for peer-to-peer networks that do not wish to rely on any trusted infrastructure, which might otherwise help the participant establish communication channels. Modern peer-to-peer networks employ various techniques to address the problem of restricted connectivity on the Internet. One interesting development is that various overlay networks now support multiple communication protocols to improve resilience and counteract service degradation.

The support of multiple protocols causes a number of new challenges. A peer should evaluate which protocols fulfill the communication requirements best. Furthermore, limited resources, such as bandwidth, should be distributed among peers and protocols to match application requirements. Existing approaches to the problem of transport selection and resource allocation are rigid: they calculate the solution only from the currents state of the environment, and do not adapt their strategy based on failures and successes of previous allocations.

This exploration of the feasibility of using machine learning to improve the quality of transport selection and resource allocation over current approaches is really important. It is necessary to improve the solution process by learning selection and allocation strategies from the experience gathered in the course of many iterations of the algorithm. It is possible through comparing different approaches in the field of machine learning with respect to their properties and suitability to the problem. Such approach presents a design showing how reinforcement learning can be used and adapted to the given problem domain.

Then the design can be evaluated with the help of simulation and realistic implementation in the GNU net peer-to-peer framework. Experimental results can highlight the multitude of implementation choices, key challenges and possible directions for the use of reinforcement learning in this domain.