AI4XR: Workshop on Artificial Intelligence for Extended Reality (VR/AR)

Part of the 13th International Conference on **PErvasive Technologies Related to Assistive Environments** (PETRA 2020)

Date: **June 30th – July 3rd, 2020**   Location: **Corfu Island, Greece**

Scope

Research in immersive technologies, such as Virtual Reality (VR), Augmented Reality (AR), or in more general terms, Extended Reality (XR), is related to how computing systems allow humans to interact with computer-generated environments in the most natural and realistic way. The sense of presence offered by these systems has encouraged the development of applications in areas such as physical rehabilitation, psychological therapies, education, skill training, arts, or entertainment. On the other hand, research in Machine Learning (ML) and Artificial Intelligence (AI) focuses on the design of models for knowledge discovery from data, which might be very valuable when applied on real-life applications where immersive technologies are being used. The objective of the workshop on *Artificial Intelligence for Extended Reality* is to serve as a stage for new research perspectives that blend immersive technologies and state-of-the-art ML from both academic and industrial parties; and to highlight and demonstrate the potential that this combination can bring for, e.g., user-behavior modelling, visualization mechanisms, novel human-computer-interaction (HCI) paradigms, multimodal interfaces, and user experience in 3D spaces. Ultimately, we expect the workshop to shed light on new research pathways on how ML can be used to let computers enhance the overall experience in immersive technologies.

List of Topics

Topics of interest include, but are not limited to:

- Machine learning for VR/AR
- VR/AR for machine learning
- Serious games and simulation
- Physiological signal processing for VR
- VR applications, including healthcare, learning, training, and arts
- HCI using augmented, virtual and mixed reality
- Multimodal interaction in immersive experiences
- Wearables as input interfaces for VR
- Natural language processing and speech interaction with virtual characters
- UX in immersive environments
- Understanding and modelling of user behavior in virtual environments
- Physical or psychological rehabilitation with immersive systems
- Data visualization in VR
- Data generation, manipulation and analysis in VR systems
- VR platforms and prototypes
- Ethical aspects of AI and immersive technologies

Important Dates

Paper submission and Proceedings

The conference proceedings, including the workshop papers, will be a volume in the **ACM International Conference Proceedings Series** in the ACM Digital Library. The ISBN number assigned to PETRA '20 is 978-1-4503-7773-7. We accept short papers (3-4 pages) or regular papers (5-10 pages).

Paper submissions should follow the formatting guidelines for regular PETRA conference papers. To prepare your submission, follow the instructions described in the official website of the conference. You can submit your paper using the main conference submission system by selecting the option *Workshop Paper* from the dropdown menu. Complete submission and formatting instructions are available here: http://www.petrae.org/guide.html.

Workshop Committee

The workshop is organized by the Data Science Group at the Department of Computer and Systems Sciences, Stockholm University.

Program Committee:

TBA

Organizers:

- Luis Quintero, MSc, PhD Student, Stockholm University
- Jaakko Hollmen, DSc (Tech.), Senior Lecturer, Stockholm University
- Panagiotis Papapetrou, PhD, Professor, Stockholm University
- Uno Fors, DDS, PhD, Professor and Department Head, Stockholm University

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