

MoTIVE(UB) / IDC H, Deep VR Workshop

Date: 27.4.20

Location: room C225, Sammy Ofer building, IDC Herzliya

Goals:

- Discussion and potential collaboration between UB and IDC in the scope of the EU MoTIVE Project
- How can we leverage recent advances in DL to automatically generate VR scenes from audio-visual content?
- How can we leverage recent advances in DL to create believable virtual humans?
- Discuss technical details, show demos, and opportunities for collaboration

Comment: in order to make this day useful each talk includes at least one reference (typically a paper). Ideally all participants will have at least a passing knowledge of the topics discussed in the paper, which would allow for in depth discussion.

11:00 Doron Friedman, Prof, IDC Herzliya, Introduction

11:10 Mel Slater, Prof, University of Barcelona, Introduction to the MoTIVE project

Since this work is quite new there are no strictly relevant papers that form a specific background. However, this is similar to one of our overall goals of putting people back in the past, while studying embodiment, Place Illusion and Plausibility, representation of large crowds and past events.

<https://www.frontiersin.org/articles/10.3389/frobt.2018.00091/full>

Slater M, Navarro X, Valenzuela J, Oliva R, Beacco A, Thorn J and Watson Z (2018) Virtually Being Lenin Enhances Presence and Engagement in a Scene From the Russian Revolution. *Front. Robot. AI* 5:91. doi: 10.3389/frobt.2018.00091

11:40 Arik Shamir, Prof, IDC Herzliya, Motion Representations for Learning

Ref: <http://www.faculty.idc.ac.il/arik/site/motionSig.asp>

12:10 Yaakov Hel-Or, Prof, IDC Herzliya, Deep representation of geometric data

12:40 Jaume Gallego, PhD student, Event Lab, University of Barcelona, 3D scene reconstruction from monocular 2D videos in the MoTIVE project

Ref: C.-Y. Weng, B. Curless, and I. Kemelmacher-Shlizerman. Photo wake-up: 3d character animation from a single photo. In IEEE Proc. Conf. on Computer Vision and Pattern Recognition, pages 5908–5917, 2019

13:10 Lunch break

14: Kfir Bar, Adjunct Lecturer at IDC, Chief Scientist at Basis Technology, Building a context sensitive conversational agent

Ref: <https://arxiv.org/abs/2001.09977>

15:30 Andreas Aristidou, Prof, University of Cyprus, Can AI Create Arts in Animation?

Refs: Holden et al. 2017. Phase-functioned neural networks for character control. ACM Trans. Graph. 36, 4, Article 42.

Liu and Hodgins. 2017. Learning to Schedule Control Fragments for Physics-Based Characters Using Deep Q-Learning. ACM Trans. Graph. 36, 4.

Peng et al. 2018. DeepMimic: example-guided deep reinforcement learning of physics-based character skills. ACM Trans. Graph. 37, 4, Article 143

Wang et al. 2018. Combining Recurrent Neural Networks and Adversarial Training for Human Motion Modelling, Synthesis and Control.

<https://arxiv.org/abs/1806.08666>

Zhu et al. 2017. Unpaired Image-to-Image Translation using Cycle-Consistent Adversarial Networks, IEEE International Conference on Computer Vision (ICCV).

15:30 break

15:45 Shimon Vainer, CTO @ RestAR, Deep Learning in 3D Reconstruction - Theory and Practice

16:15 Eyal Gruss, PhD, Fake Anything, The Art of Deep Learning [automatically generated title]

Ref: <https://dl.acm.org/citation.cfm?id=3329185>

<https://dl.acm.org/citation.cfm?id=3329183>