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## Keynote

### Physically Plausible Characters

*Duygu Ceylan*

Adobe Research

#### Abstract

We are living in an era where the digital world is becoming an inevitable part of our professional and daily lives. Hence, there is a stronger demand to make digital experiences feel life-like. One crucial component to achieve the goal of creating immersive experiences is the ability to create physically plausible characters. In this talk, I will focus on some of my recent work in the context of developing smart algorithms to create plausible and dynamic characters with rich garment details, vivid secondary dynamics, and physically plausible animation.

#### Biographical Note

Duygu Ceylan is a senior research manager at Adobe Research, London. Prior to that she has obtained her PhD from EPFL under the supervision of Prof. Mark Pauly. Duygu has received the Eurographics Young Researcher Award in 2020. Duygu is excited to work at the intersection of computer vision and graphics where she is eager to develop methods to bridge the gap between 2D & 3D. Her research specifically focuses on 3D inference and analysis both for human-made objects as well as humans. <https://research.adobe.com/person/duygu-ceylan/>

## Keynote

### Data Driven Character Simulation

*Yiorgos Chrysanthou*

CYENS Centre of Excellence / University of Cyprus

#### Abstract

Virtual environments are increasingly present in our lives, with a large number of potential applications. An indispensable component of many of these applications are virtual humans. From training for evacuation through to background scenes for a historical drama, virtual characters provide important context and constraints to the user; they can significantly improve the plausibility of the environment leading to a more realistic response, and ultimately, better understanding of the situation or better entertainment. Increasing processing power and the latest machine learning developments, enable designers and programmers to add multitudes of virtual characters in real-time applications. As the real-time rendering of the characters is becoming more and more realistic, there is a considerable gap between the rendering appearance and their simulated behavior. In this presentation we will look at some recent work on data-driven character simulation and animation covering both the simulation of virtual crowds and ambient life as well as the stylistic animation of individual characters.

#### Biographical Note

Yiorgos L. Chrysanthou is the Research Director of the Centre on Interactive Media, Smart Systems and emerging Technologies – CYENS Centre of Excellence. He is also a Professor at the Computer Science Department of the University of Cyprus. Yiorgos was educated in the UK (BSc and PhD from Queen Mary College, University of London) and worked for several years as a research fellow and a lecturer at University College London. He has published over 80 papers in journals and international conferences on computer graphics and virtual reality and is a co-author of the book “Computer Graphics and Virtual Environments: From Realism to Real-Time”, (Addison-Wesley 2001+ China Machine Press 2004). Yiorgos serves as an associate editor for the Journals Computer Graphics Forum and Computers and Graphics, and review editor for Frontiers in Robotics and AI (Specialty Section Virtual Environments). He served as the local or overall coordinator of over 25 research projects, related his research interests, that lie in the general area of 3D Computer Graphics, recently focusing more on the development of algorithms for real-time AR and VR rendering, reconstruction of urban environments and computer animation.



## Keynote

### A (Virtual) Walk Outside

*Oscar Argudo*

Universitat Politècnica de Catalunya

#### Abstract

Virtual landscapes used in media and games nowadays can already display large impressive terrains with richness of details. Therefore, the current challenge is not only to produce visually appealing scenes, but also to ensure they conform to some objective criteria for realism. For example, we could simulate the physical processes underlying natural phenomena, or reproduce distributions of measured properties. Following these ideas, I will present a few works aimed at modeling a variety of natural landscapes: from deserts to glaciers, from the highest rocky peaks to gentle forested hills. We will see how, in many cases, we incorporated knowledge from other disciplines outside Computer Science, and how some of the key insights came from actual walks outdoors.

#### Biographical Note

Oscar Argudo is currently a Maria Zambrano research fellow at the ViRVIG group of the Universitat Politècnica de Catalunya. He obtained his PhD in Computing from UPC in 2018, under the supervision of Carlos Andújar and Antonio Chica. His thesis focused on the creation of realistic natural scenarios, leveraging machine learning techniques and real data to improve procedural and example-based modeling algorithms. After that, he was hired as a postdoctoral researcher by the CNRS in the LIRIS laboratory in Lyon, working on procedural modeling of mountainous landscapes and the simulation of natural phenomena such as dunes, glaciers and ecosystems. His current research project deals with the generation of hiking paths networks and the modeling of degradation effects caused by outdoor activities. He has published in journals such as ACM Transactions on Graphics and Computer Graphics Forum, and presented in top conferences like SIGGRAPH Asia and Eurographics. <https://www.oargudo.com/>