Preface

Culture and Computer Science 2019 – Virtual History and Augmented Present

As a rapidly expanding area of computer research, Augmented and Virtual Reality is characterised by a high degree of interdisciplinarity. The entanglement between the real world and computer generated data cuts across, and expands far beyond, disciplines such as Human-Computer Interaction (HCI), Computer Graphics (CG), sensor systems, human-to-machine communication, and machine-to-machine communication on the one hand. On the other hand questions such as the origin of the data, or the impact of such media technologies on our perception and concept of reality are highly relevant in media studies, cultural history and theory, but also in archaeology, ethnology, museology or cultural heritage.

Given this interdisciplinary constellation, one can translate the concept of Mixed Reality (Milgram, Takemura, Utsumi, & Kishino, 2005) or the seamless bridging of the physical and virtual worlds into the linkage between virtual history and augmented present. While the supposedly real is always mediated by natural or artificial senses/sensors having their own history, all we know about history is transmitted through media such as images, texts or archaeological findings, but also through vinyl records, films or computer data. All these media traces generate what we call history. And this history differs from the present and the future precisely in that there are no artefacts or traces for them, whereas possible futures can be designed in the present.

Hence, the representation of history and the presentation of the present and future are two sides of the same coin coming together in today's media and computer technologies. Reconstruction and construction are intrinsically linked to current media techniques and are fundamentally interdependent. The extent to which our *knowledge* of history has changed can be seen, for example, in the media history of archaeology, when current

tools such as Unity are used to render possible historical worlds virtually experienceable. With that in mind, this year's 17th International Conference on Culture and Computer Science aims to address the multifaced bridges between virtual history and augmented present.

The "Culture and Computer Science" conference series brings into focus best practice examples, challenges and future trends in the fields of Augmented, Mixed and Virtual Reality, hybrid systems, 3D technology, data collection and management, media integration, modelling, visualisation and interaction. The authors of this international volume analyse, demonstrate and discuss current research strategies and developments around "Virtual History and Augmented Present". In addition to four invited keynote papers, more than 40 papers were submitted. Each paper was reviewed by three different members of the international programme committee. Our thanks go to the members of the programme committee for their assistance in reviewing the numerous submissions. The international programme committee selected 18 papers and 11 interactive installations and grouped the contributions, together with the 4 keynotes.

Hence, the reader will find an extensive overview of best practice applications of information management, communication, interaction, visualisation, mixed, augmented and virtual reality, audio technology, multimedia, streaming and data processing, and design within a specific cultural context. The contributions analyse and discuss the following key topics:

- Research in Reconstruction;
- Sensorial Narratives;
- Augmented Reality and 3D;
- Digitalisation and Technology;
- Digital Storytelling.

This edition of the series "Culture and Computer Science" was only possible with the continuous support of the *Konzerthaus Berlin*. In this respect, we thank specifically the staff and the artistic director Prof. Dr. Sebastian Nordmann of the *Konzerthaus Berlin*, in whose premises we hold the conference "Culture and Computer Science – Virtual History and Augmented Present". The special atmosphere of the surroundings will

certainly continue to have a lasting effect on all speakers and participants. In particular, we would like to thank Janina Paul and Elena Kountidou from the "Konzerthaus Berlin" for their support of and their engagement with the conference.

Our special thanks goes to all authors, without whose creativity, ideas and hard work it would not be possible to run an international conference and to produce these very interesting and inspiring proceedings.

Finally, this and all previous conferences "Culture and Computer Science", as well as this publication, would not have been possible without the commitment of the staff and colleagues of our research group INKA at the University of Applied Sciences HTW Berlin. In particular, we would like to thank Kerstin Remes, Denise Bischof, Dagmar Schürrer, Maja Stark, Elisabeth Thielen, Julien Letellier and Michael Thiele-Maas.

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Augmented Reality:
In this publication, you have several opportunities to use, test and enjoy Augmented Reality. Simply download the app "CLOU" or "INKA-AR" free of charge from the App Store or Play Store, start the app on your smartphone and look out for the AR symbol in the book. Use the app on these pages and study the additional information presented at your smartphone.

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