IEEE VR 2022 Workshop on Virtual Humans and Crowds in Immersive Environments (VHCIE)

- **Expected Dates**: March 12 or 13, 2022
- **Workshop Website**: http://files.inria.fr/vhcie/2022
- **Workshop Description**:

The 7th edition of the workshop on Virtual Humans and Crowds in Immersive Environments (VHCIE) will take place during the 29th IEEE Conference on Virtual Reality and 3D User Interfaces that will be held from 12-16 March, 2022 (https://ieeevr.org/2022/). VHCIE is a half a day online workshop.

Nowadays many tools, including algorithms and systems, are available to create and design believable virtual humans and crowds in immersive virtual environments (IVEs). One traditional research area is thereby the population of IVEs. With sophisticated crowd simulations, environments with the size of an entire city can be efficiently enlivened with thousands of authentic virtual characters, termed virtual agents. Typically, these agents only react to VR users in terms of interactions between walkers, including collision avoidance, gazing, and interpersonal distance constraints. To this end, a second research area focuses on direct agent-user interactions including communicative abilities and social behavior to design believable verbal and non-verbal behavior for agents in face-to-face interactions. Research on both facets has been presented and discussed in the previous VHCIE editions, primarily from the viewpoint of VR research. Thus, VHCIE 2022 widens the focus by starting a cross-community exchange with researchers from industry and other disciplines involved in modeling, developing, and evaluating virtual humans and crowds.

The objective of VHCIE workshop on “Virtual Humans and Crowds in Immersive Environments” is then threefold. Through a panel and a selection of submitted presentations (papers and late breaking research), we will:

- Present state of the art character and crowd animation techniques for interactive agents. Recent developments in character and crowd animations have impressively improved the level of quality for motions, as well as computational performances. One objective of the workshop is to present how VR and immersive environments can benefit from these recent developments.
- Present some examples of new research opportunities offered by the availability of populated virtual environments. Populating VEs with several autonomous characters is a relatively recent advancement. What research can benefit from such capability? We expect presentations related to how recent technological advances enable or facilitate such research.
- Discuss technological requirements for future applications. Recent technologies and software have clearly eased the creation of populated immersive VEs. However, there is still a way for improvement. Thus, the third objective of the workshop is to gather the requirements of current users of these technologies for future applications. To this end, our audience and an invited cross-community panel from different research areas (VR, IVA, ..) as well as industry will try to answer questions such as: Do users expect better animation quality? Better rendering? Or, higher level of autonomy? What kind of interactivity is expected with autonomous agents?

Finally, we expect that the workshop will provide an opportunity for researchers to develop new techniques for virtual humans and crowds and will possibly lead to new intersectoral collaborations.

- **Workshop Topics:**

  Workshop organizers call for submissions of research papers, technical notes, position papers and encourage the submission of work-in-progress research on the following topics:

  - Virtual Humans (VH)
  - Virtual Crowds (VC)
  - Immersive populated spaces
  - Interaction with VH & VC
  - Multimodal rendering of VH & VC
  - Virtual Reality applications to VH & VC

- **Format and Submission Guidelines:**

  The workshop will include:
  - A cross-community panel from different research areas (VR, IVA, ..) as well as industry on the topic of virtual agents and crowds. We are delighted to announce our 4 panelists:
    - **Catherine Pelachaud** (ISIR, France),
    - **Dinesh Manocha** (University of Maryland, USA),
    - **Anton Bogdanovych** (Western Sydney University, Australia) and
    - **Nicolas Chaverou** (Golaem, France)
  - A 1h30 session of short paper presentations that will be reviewed by at least 2 international experts.
  - A chatroom after the workshop to continue the discussions.

  Short papers must be submitted in PDF format, using the IEEE VGTC format, following a double-blind process. A committee of expert reviewers will evaluate all submissions. We welcome the following submissions (page limits **include** references):

  - Research papers: 4-6 pages
  - Technical notes: 2-4 pages
  - Position papers: 2-4 pages
  - Work-in-progress research: 1-4 pages

  All accepted papers will be included in the IEEE Xplore Library.
  Papers should be submitted using PCS.

  New this year! We will also call for Late Breaking Reports on the basis of an abstract submission that will not be published in the IEEE Xplore Library. The goal of these Late Breaking Reports is getting feedback on a research idea/the study design etc - through a short presentation used to start a discussion with the audience.

- **Important Dates**:

  - Paper submission: January 11th, 2022
  - Notification of acceptance: January 20th, 2022
  - Camera-ready: January 29th, 2022
  - Late Breaking Reports: February 20th, 2022
  - Notification of Late Breaking Reports: February 27th, 2022

- **Workshop Organizers**:

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