

**CGS 2018****Computer Graphics for Simulation****July 9-12, 2018****Bordeaux, France**

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### Aims and Scope

Simulations can consist of focused physical simulations to complex interconnected systems. Simulations can be used to produce numbers. Some simulations can produce theories of human behaviors. Other simulations test security while others investigate industrial control. In some cases the result is just a number or statistic. In many cases, the results are anthropomorphic. Many simulations use graphics to present the results. Many simulations use virtual objects to represent the input to simulations. In many cases, the simulation must be visualized to reveal useful patterns in processes and models.

This paper track is designed to elicit papers that present novel results in simulation interoperability and visualization. The paper track focuses on several topic areas. The General Computer Graphics topic area is designed to solicit papers that apply state of the art graphics techniques to visualizing simulation results and simulation virtual environments. The Web3D / WebGL / HTML5 topic area is designed to extract from the research community, state of the art techniques for visualizing distributed simulations. Many physically based simulations require solutions of complex systems of equations that must have efficient computational grids to produce realistic results with minimal computer resources. Current hot topics now include Vulkan, Docker containers and Metal 2 along with AR integration into game engines. WebGL, GPGPU computing and HTML5 are now mainstream established hot topics in Computer Graphics heavily promoted since SIGGRAPH 2014 and discussed in various Web3D, Asian and European Graphics conferences. Also of special interest is 3-D visualization for commercial simulation systems such as Simulink, and System Modeler.

# CALL FOR PAPERS



Many of the topic areas involve advanced computer graphics techniques and in some cases, art of high caliber. Authors are encouraged to attach supplementary high-resolution renderings to their submissions for presentation in an exhibition at the conference [Fame and Glory is the reward].

## Topics

### General Computer Graphics

- DEVS, simulation methodologies and computer graphics
- Rendering strategies and algorithms for architecture
- Modeling and animation of machinery simulations
- Modeling and animation support for industrial processes
- Solid modeling for simulation
- Visualizing gas, explosion and fluid simulation
- Volume visualization for simulation (medical, structural, geological, fluids, gases)
- Visualizing terrain effects on simulations (fluid, telecommunications, transport, security, military)
- Transportation visualization (structures, flight, vehicles, tunnels, construction)
- Level of detail strategies for simulation visualization
- Massive virtual environments
- Time and memory complexity of scientific visualizations
- Interaction techniques and haptic devices for simulation
- Visualizing damage to military and civilian transport
- Realistic lighting for simulation

### Web3D / WebGL / HTML5 / AR / Vulkan / Metal 2 for Simulation

- VRML/X3D for simulation and WebGL for distributed simulations
- COLLADA / OSG / KML / Game simulations / DEVS and CG / Coupled DEVS and CG
- Simulink / System Modeler 3-D visualization and interoperability
- Game Engines and Augmented Reality for Simulation
- SceneGraphs and strategies for simulation visualization optimization
- Collaborative medical simulation
- Data acquisition for simulation
- Distributed military simulation visualization
- Interoperability between military and civilian file formats
- NVIDIA CUDA, OpenCL [Open Compute Language for CPU/GPU Scheduling]

### Computational Grids for Simulation / GPGPU Computing for Simulation

- 2-D and 3-D irregular grids for simulation
- Adaptive grids for simulation

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- Parallel algorithms for computational grids
- Grids for very large virtual environments
- Mimetic methods

## Submission Guidelines

Original, high-quality technical papers are solicited for review, possible presentation and subsequent publication in the conference proceedings. For further instructions, please refer to the Submission Instructions in the SCS Conference Proceedings Management System web site. Contributed papers are 12 pages long with single column format. For author guidelines on how to submit a paper, please go to <http://scs.org/authorskit/>. They will be peer reviewed and – if accepted and presented at the conference - possibly submitted to the ACM and IEEE Digital Libraries. Papers must not have appeared before (or be pending) in a journal or conference with published proceedings, nor may they be under review or submitted to another forum during SummerSim'18 review process. At least one author of an accepted paper must register for the symposium and must present the paper at the symposium.

## Important Dates

**Full Paper submission:** March 2, 2018

**Author notification:** May 4, 2018

**Submission of WIP papers:** May 11, 2018

**Notification of WIP papers:** May 18, 2018

**Camera-ready Paper:** May 25, 2018

## Contact

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