

# Guest Editor's Introduction to the Special Section on the ACM Symposium on Interactive 3D Graphics and Games (I3D)

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**T**HIS special issue of *IEEE Transactions on Visualization and Computer Graphics (TVCG)* includes four extended papers from the 2015 ACM Symposium on Interactive 3D Graphics and Games. This edition marked the 29th year since the first conference.

The main focus of I3D is on disseminating novel techniques in computer graphics with an emphasis on speed and interaction. The proposed solutions cover a wide range of areas within the field, including rendering, animation, imaging, and simulation. Many of these techniques find practical uses in many fields, particularly in the game industry.

I3D 2015 took place in San Francisco, California from February 27-March 1. Following the 2014 edition, the conference was co-located with the annual Game Developers conference, which helps connect the researchers working on these novel state of the art techniques with the main target practitioners from the game industry.

The conference received a total of 39 paper submissions of which 15 were accepted. The papers that received the highest review scores were referred for a TVCG extended version. These papers, which are presented in this issue, underwent the full TVCG review process.

The extended papers include novel interactive algorithms for path tracing, antialiasing, and shadow computation. In "Aggregate G-Buffer Anti-Aliasing", the authors propose a technique for antialiasing in a deferred rendering framework. Their approach stores a compact representation of the scene geometry at each pixel. The proposed solution decouples shading rate and geometric complexity, resulting in fast, antialiased rendering results in a deferred shading setting. In "Compressed Coverage Masks for Path Rendering on Mobile GPUs", a new technique for resolution independent curve rendering is presented. The approach, targeted for mobile platforms, first generates and uploads a compressed grayscale coverage mask, which is used by the GPU during path rendering, yielding significant savings and memory and speed. The final two papers introduce significant advances in shadow computation. In "Fast,

Memory-Efficient Construction of Voxelized Shadows", the authors present a novel technique to construct voxelized shadows which improve on the state of the art by several orders of magnitude. Furthermore, the approach has a smaller memory footprint and can efficiently scale to hundreds of lights. Finally, in "Frustum-Traced Raster Shadows: Revisiting Irregular Z-Buffers", the authors present a new technique for efficient subpixel-accurate hard shadows. The approach leverages the rendering pipeline and is able to produce fast alias-free results with no constraints imposed on the camera, light, and geometry.

In addition to the papers program, I3D 2015 also included a posters and demos session, games industry panel, and three keynotes by Hugues Hoppe, Natalya Tatarchuk, and Matthias Muller. We are extremely grateful to the IPC as well as everyone involved in the organization of all the programs, which made it a successful conference with many high quality works. Finally, we thank TVCG for continuing to provide this opportunity, which provides further exposure some of the top innovations from I3D.



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