

# High-Performance Graphics 2019

Strasbourg, France  
July 8 — 10, 2019

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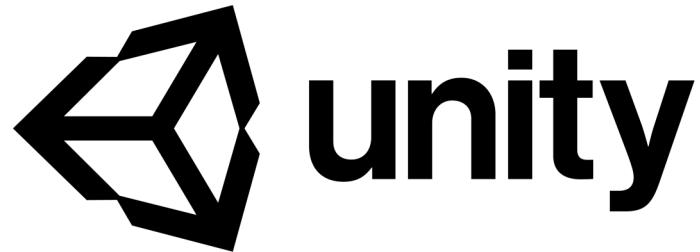
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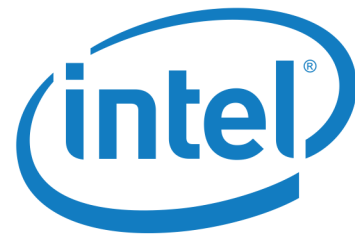
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## **Preface**

We are very pleased to present the proceedings of High-Performance Graphics (HPG) 2019. This year marks a special year for the conference, as High-Performance Graphics full-papers are included in Computer Graphics Forum for the first time. High-Performance Graphics will continue to present its full papers in journal form. While during European year full-papers will again be published in Computer Graphics Forum, during US years, full papers are published in the Proceedings of the ACM on Computer Graphics and Interactive Techniques.

2019 marks the eleventh year of the conference. High-Performance Graphics has established itself as the leading international conference on graphics hardware, systems, and algorithms. The conference brings together researchers, engineers, and architects to discuss the complex interactions of massively parallel hardware, novel programming models, efficient graphics algorithms, and novel applications.

High-Performance Graphics was founded in 2009 as the combination of two important and well-respected conferences in computer graphics: Graphics Hardware, an annual conference focusing on graphics hardware, architecture, and systems since 1986; and Interactive Ray Tracing, concentrating on interactive ray tracing and global illumination since 2006. HPG combines the best research from these two fields and covers a broad range of exciting algorithms for interactive and high-performance graphics solutions.

This year continues to reflect the traditional synthesis of ray-tracing and graphics hardware, with about half of the accepted papers being related to ray tracing. In total, 20 full-papers were submitted to HPG 2019, of which 6 were accepted, resulting in an acceptance rate of 30%. In addition to the full-paper track, HPG recently introduced a short paper track. This year, we could accept 9 short papers, which are being published in the Eurographics Digital Library. We want to express our deepest gratitude to all the 57 reviewers, 35 IPC members, and all the submitters for their your hard work in creating a successful conference.

Tim Foley and Markus Steinberger  
Papers chairs

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### **The Story of NVIDIA RTX** *Steve Parker*

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### **Managing Ultra-high Complexity in Real-time Graphics: Some Hints and Ingredients** *Fabrice Neyret*

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### **Modern Movie Rendering: How Raytracing Changed my Industry**

*Luca Fascione (Weta digital)*

The movie industry is in the last steps of completing a shift in rendering technology from rasterization-based workflows to path tracing-based ones. We will discuss how and why this change has happened, and propose ideas for where this new path may lead.

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*Jaakko Lehtinen (NVIDIA, Aalto University)*