

Esports Rendering: What the Industry and Players Need

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Abstract

Esports is a unique challenge for rendering research, with players regularly turning off even basic rendering techniques to reduce latency. In this workshop, three esports developers and three competing esports athletes will form an expert panel on esports rendering needs. The workshop will have three parts: a traditional panel session, with questions from a moderator and from the panel itself; an audience discussion session, with groups led by organizers and panel members producing questions and raising issues; and a closing panel session, with the panel addressing the questions raised by the audience.

Keywords

games, esports, rendering, developers, players

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1 Workshop Motivation, Topic and Questions

The history of computer graphics is one of continued improvements to imagery, from the early wireframe days of the 60s to today's ray tracing, physically based rendering and splatting. Yet nearly 20 years ago, George Lucas stated [Carse 2005] that "the real leap has been made." And today, esports players often turn off the rendering techniques that took SIGGRAPH so long to develop [Madhusudan and Watson 2021]. This workshop will begin exploring the rendering needs of esports, from the perspective of both developers that make the games, and of competing athletes that play them. It will also engage the audience and its expertise and interests in the discussion.

Discussion will be centered around an expert panel, composed of three esports developers, and three competing esports athletes.

While the workshop will foment discussion with basic questions like those below, it will be largely open format, following the interests of the expert panel and the audience:

- What are the goals for esports rendering, if not photorealism? Which existing graphics techniques do esports actually need or want?

- How much does temporal accuracy matter in games (e.g. latency, frame rate, etc), and how should renderers trade off visual with temporal accuracy?.
- How do game publishers manage rendering, both in graphics settings and interface? How do players manage rendering?
- How does rendering interact with fairness and gameplay?
- Which innovations do esports developers and players want or need most?

2 Objective and Program

Our goal with this workshop is to foment ideation and discussion, and to begin building an esports rendering research community at SIGGRAPH. With that in mind, about a third of our workshop's time is dedicated to audience discussion. Below is our proposed program:

- 10 mins: Welcome and introduction
- 50 mins: Moderated panel discussion
 - 20 mins: Panelists respond to moderator questions
 - 15 mins: Developer panelists respond to questions from athlete panelists
 - 15 mins: Athlete panelists respond to questions from developer panelists
- 15 mins: BREAK
- 60 mins: Organizers and panelists join audience discussion
 - 5 mins: Organizers describe goal: generate questions
 - 55 mins: Discussion
- 15 mins: BREAK (organizers compile questions)
- 50 mins: Panelists respond to audience questions
- 10 mins: Conclusions and next steps

3 Differences from Previous Workshops

While this workshop shares two organizers and themes with previous esports Frontiers workshops, it differs in two important ways. First, it puts the organizers into the background, in favor of an expert panel composed of esports developers and players. Second, it is structured as a conversation between the expert panel and the audience, with the panel initially provoking discussion, the audience responding, and the panel answering to that audience response.

4 Contributors and Expertise

Benjamin Watson is an Associate Professor of Computer Science Department at North Carolina State University, where he directs the multidisciplinary Visual Experience Lab. His work has long focused on temporal concerns in computer graphics rendering. He has organized several esports workshops, and chaired the Graphics Interfaces and ACM I3D conferences (most recently in 2025).

*Both authors contributed equally to this research.

Josef Spjut is a Research Scientist at NVIDIA focusing on esports, where he helped realize NVIDIA's low-latency Reflex displays. His love of esports led to his doctoral work on ray-tracing hardware. He was Games Focus Area Chair for SIGGRAPH 2023.

Watson and Spjut will recruit three esports developers and three competing esports player/athletes to form their expert panel.

References

- Bruce Carse. 2005. Keynote speech: George Lucas: A keynote Q&A with the father of digital cinema. In *ACM SIGGRAPH 2005 Papers*. 1–es.
- Arjun Madhusudan and Benjamin Watson. 2021. Better frame rates or better visuals? An early report of Esports player practice in Dota 2. In *Extended Abstracts of the 2021 Annual Symposium on Computer-Human Interaction in Play*. 174–178.