

Efficient Real-Time Shading with Many Lights



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Presenters



- ▶ **Ola Olsson**
 - ▶ Chalmers University of Technology
 - ▶ PhD – project assistant
- ▶ **Emil Persson**
 - ▶ Avalanche Studios
 - ▶ Head of research
- ▶ **Markus Billeter**
 - ▶ Visualization and Multimedia Lab,
University of Zürich
 - ▶ Postdoc.



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- Lets start with introductions.
- I'm Ola Olsson, and have spent a large portion of my PhD studies exploring real-time many light shading algorithms. I defended my thesis in February this year, successfully I might add. Before starting my PhD I was a games programmer for many years, in many different roles.
- The bearded fellow over there is Emil Persson who is head of research at Avalanche studios. Many of you from the games developer community will know of him as he is a recurring speaker at GDC and SIGGRAPH.
- And finally we have Markus Billeter, a postdoc at the Visualization and Multimedia Lab, University of Zürich and who also received his PhD at Chalmers earlier this year. Markus has spent a similar portion of his PhD studies on many light algorithms, and other real-time rendering techniques. While an intern for 9 months at Bosch, he started investigating applying these techniques in the mobile space.
- Together we will do our best to represent the state of the art in the field of real-time shading with many lights, hoping to cover a broad spectrum. However, since we are the inventors, and earliest adopters of, clustered shading, there is some bias in the perspective we take.

Schedule



Topic	Presenter	Length	Start	End
Course Introduction	Ola Olsson	00:05	09:00	09:05
Introduction to Real-Time Shading with Many Lights	Ola Olsson	01:00	09:05	10:05
Practical Clustered Shading	Emil Persson	00:40	10:05	10:45
Break		00:15	10:45	11:00
Efficient Shadows from Many Lights	Ola Olsson	00:40	11:00	11:40
Clustered Shading on Mobile Devices	Markus Billeter	00:40	11:40	12:20
QA	All	00:25	12:20	12:45
Total		03:45		



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- This is our schedule today.
- One these formalities are out of the way, I will start with an introduction to real-time shading with many lights.
- In this part, I will cover the most common algorithms, such as traditional forward shading, deferred shading, and tiled and clustered variants.
- Next. Emil will take us on a break from the academic dryness, and share experiences and adaptations that were invented to bring clustered shading to production level at Avalanche.
- After this, there will be a 15 minute break, and assuming all things are on time, we resume at 11 sharp.
- Then I will come back on stage and present my latest research on supporting shadows from many lights with both high performance and quality.
- Then Markus will give us an overview on the novel challenges that arise when adapting the real-time shading many-lights shading techniques to mobile platforms. And of course solutions too!
- Finally we have a QA slot, where all the presenters will take any questions about the course material, not just the final session. In addition, we will end each talk with a short time for questions.