

# Monte Carlo Methods for Volumetric Light Transport Simulation



Eurographics 2018 State of the Art Report

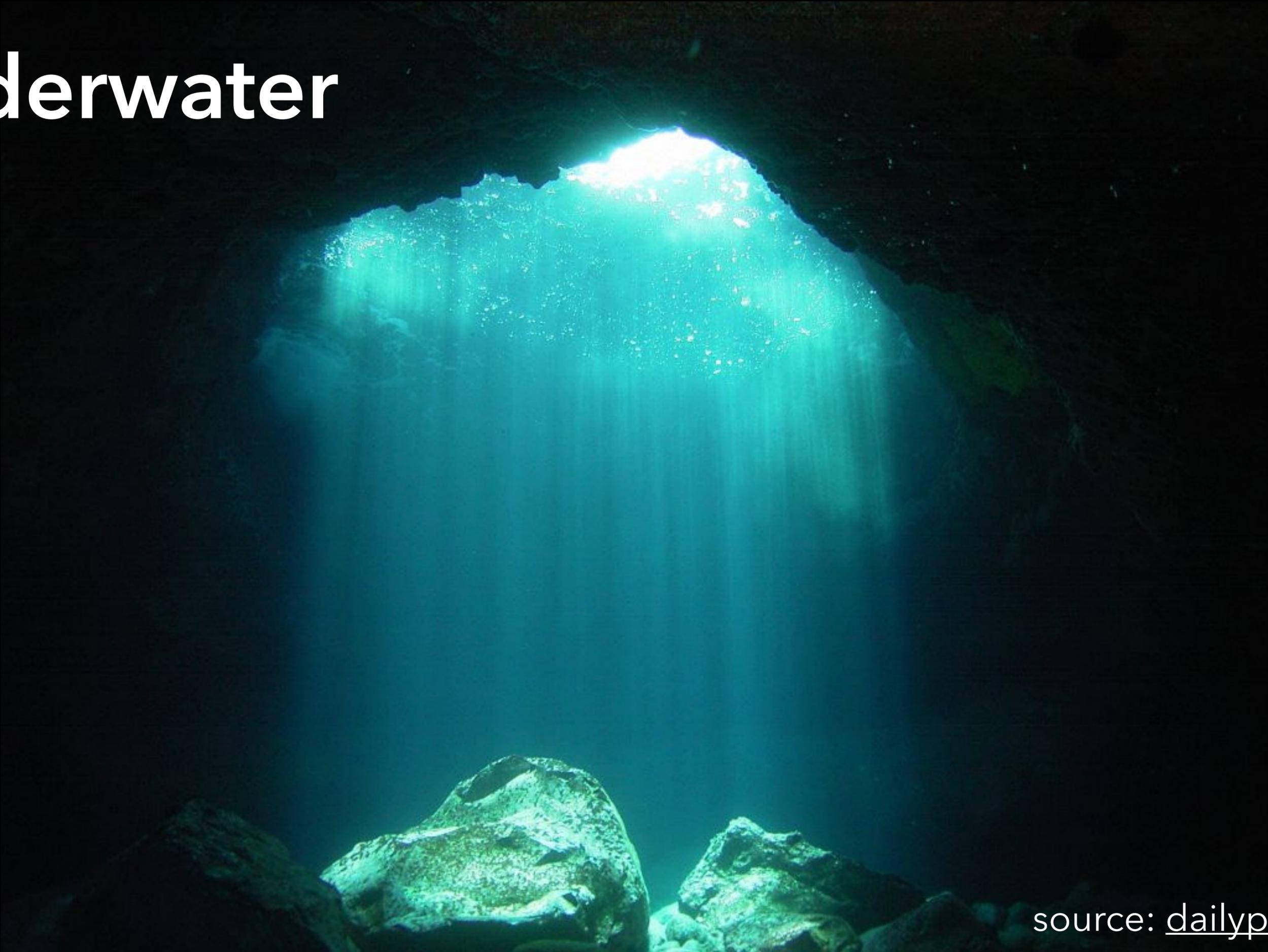
TUESDAY, 17 April 15:15 - 16:45 | Frans van Hasseltzaal

# Fog & clouds



Steve Lacey

# Underwater



source: [dailypictures.info](http://dailypictures.info)

# Surface or volume?



source: Flickr

# Surfaces and volumes



Wojciech Jarosz

source: Studio Lernert & Sander



# Rapid progress since last STAR by Cerezo et al. in 2005



**Avatar.** Copyright © 2009 20th Century Fox



**Arrival.** Copyright © 2016 Paramount Pictures



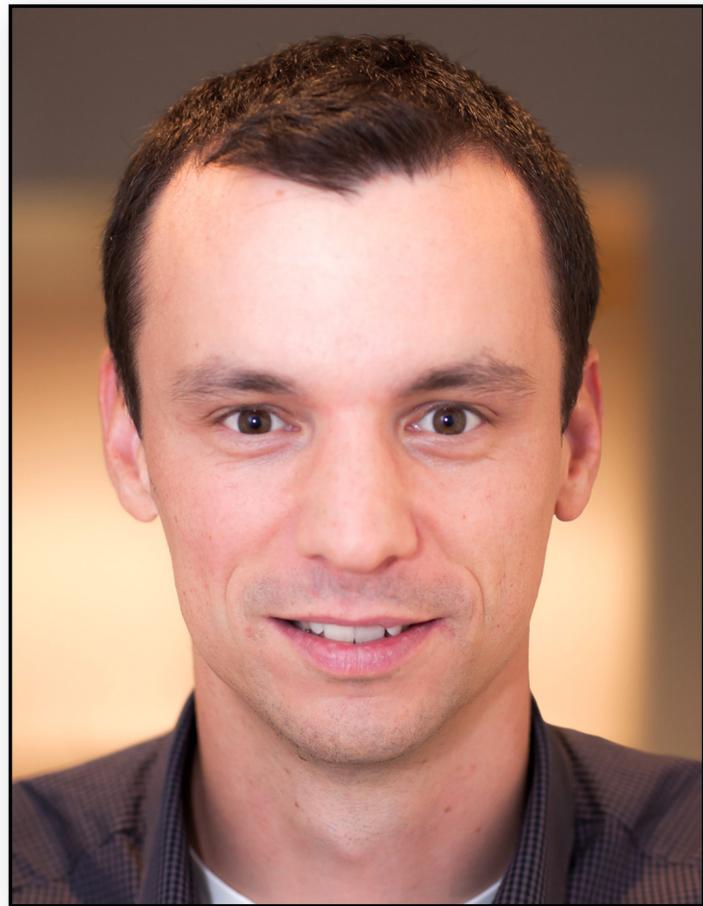
**Big Hero 6.** Copyright © 2014 Walt Disney Enterprises, Inc.



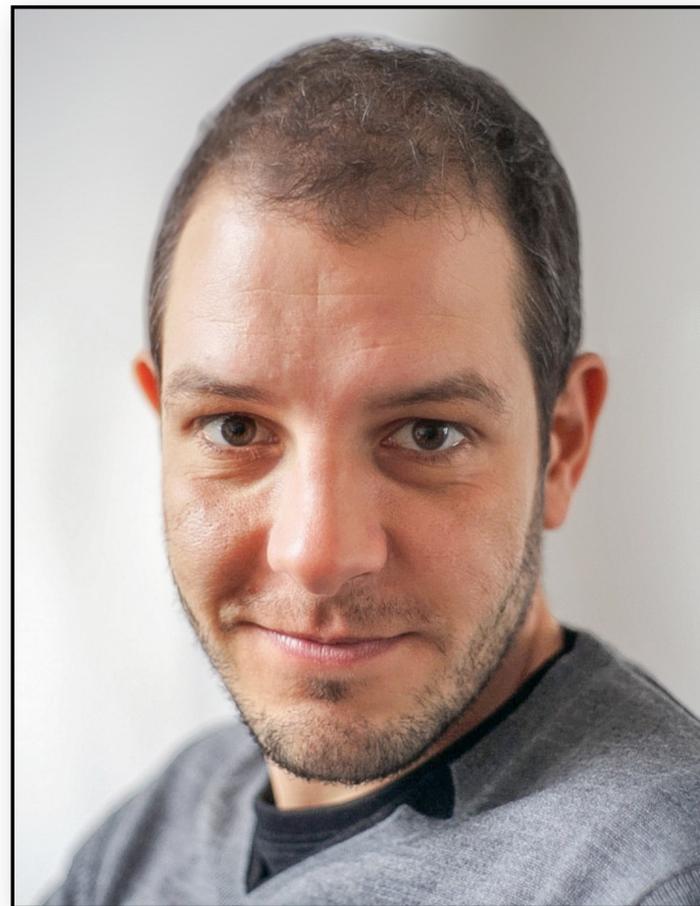
**Mortal Engines.** Copyright © 2018 Universal Studios

# Presenters

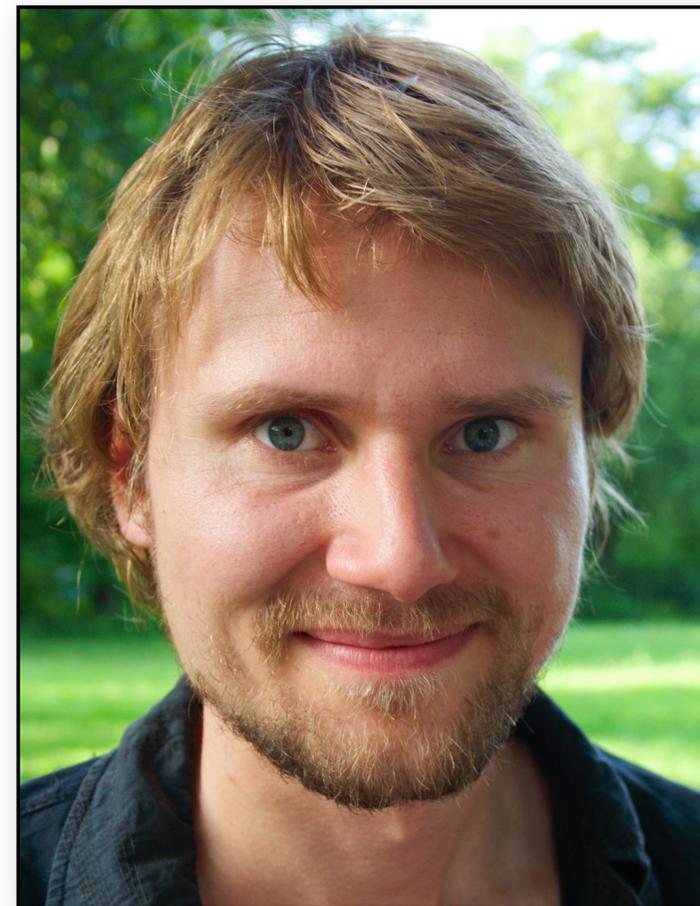
Jan Novák  
(Disney Research)



Iliyan Georgiev  
(Solid Angle/Autodesk)



Johannes Hanika  
(KIT/Weta)



Wojciech Jarosz  
(Dartmouth College)



# Syllabus

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## **Fundamentals [8 minutes]**

- *Jan Novák (Disney Research)*

## **Distance sampling [17 minutes]**

- *Jan Novák (Disney Research)*

## **Transmittance estimation [17 minutes]**

- *Wojciech Jarosz (Dartmouth College)*
- *Jan Novák (Disney Research)*

# Syllabus

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## **Sampling light transport paths [15 minutes]**

- *Iliyan Georgiev (Solid Angle/Autodesk)*

## **Advanced methods [27 minutes]**

- *Wojciech Jarosz (Dartmouth College)*
- *Johannes Hanika (KIT)*

## **Acceleration structures [5 minutes]**

- *Johannes Hanika (KIT)*

# Syllabus

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## **Open problems & Conclusion [5 minutes]**

- *Johannes Hanika (KIT/Weta Digital)*

**ENJOY!**